

PULP & PAPER

MAY 1950

Vol. 24

No. 5



EYES OF ALL KRAFT INDUSTRY ARE FOCUSED ON THIS SPOT

Photo by PULP & PAPER Editor on 35 mm. film shows where modern POTLATCH Mill is rising at Lewiston, Idaho. Mountains over 100 miles away. See page 26.

for superior whiteness in
bond, writing, book, ledger



HELMERCO BLUE

Wherever superior whiteness is required, in bond, writing, book and ledger, paper manufacturers have come to depend on HELMERCO BLUE to supply it. They find it has good working properties in the beater, and offers excellent light fastness. It also produces fine light blues in these same papers.

In the tinting of paper coatings, HELMERCO BLUES produce an excellent high white shade in any formula.

HELMERCO BLUES are available in a range of shades from red to green: M4R Conc., M2RW Conc., MGW Conc., MG Conc., M2GB Conc., M2G Conc., M4G Conc., and M5G.

Let your Calco representative help you with any problems related to the coloring of paper.

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CALCO CHEMICAL DIVISION,
Bound Brook, New Jersey

New York • Chicago • Boston • Philadelphia • Charlotte • Providence

POWELL RIVER

UNBLEACHED
SULPHITE PULP

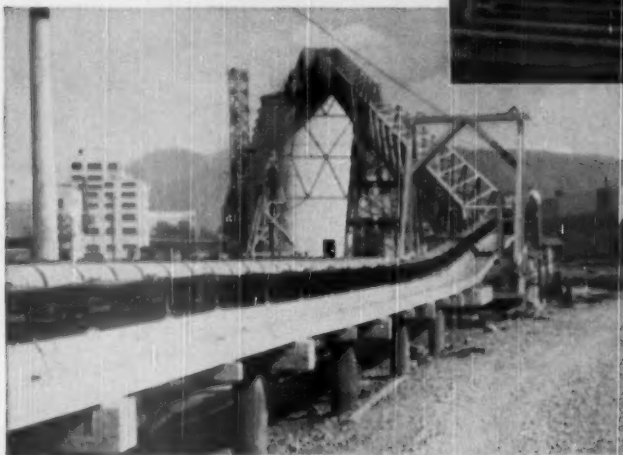
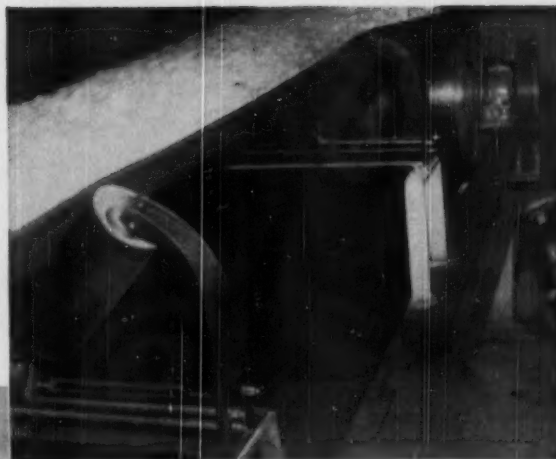


★ STRENGTH
★ COLOR
★ SERVICE
★ DEPENDABLE
★ SUPPLY

**POWELL RIVER
SALES COMPANY
LIMITED**

1200 STANDARD BUILDING - VANCOUVER, B.C.

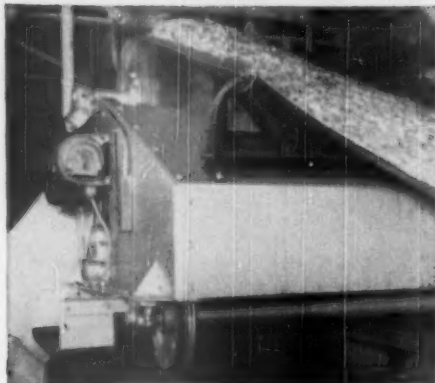
MOVE MORE MATERIAL on LINK-BELT 45° BELT CONVEYOR IDLERS →



Illustrating the high capacity obtainable with 45° idlers without spillage.

Equipped with 45° idlers, this 24 inch wide belt conveyor handles wood chips from chipper to storage bins.

Greater all-round efficiency of belt conveyors is reported by mills, where Link-Belt 45 degree troughing idlers have been in use for the past several years.



45° idler forming part of Link-Belt motor driven tripper on 48 inch wide belt conveyor delivering wood chips to storage bins.

The carrying capacity for a given belt width is increased, or a narrower belt can be used to handle a given volume. With self-aligning idlers installed at recommended intervals, the belt is protected and preserved from damage, excess wear, spilling or below-capacity loading, due to misalignment.

Link-Belt 45° troughing idlers are available in two styles: with unequal length rolls, the center roll being longer than the two end rolls, the latter being of equal length, and with equal length rolls, where all three rolls are of equal length.

The unequal length idlers accommodate belt widths up to 60 inches. The equal length idlers accommodate belts up to 72 inches wide.

Let Link-Belt engineers show you how the 45° troughing idlers can increase your handling capacity and reduce costs.

LINK-BELT COMPANY PACIFIC DIVISION

Plants and Factory Branch Stores at San Francisco 24,
Los Angeles 33, Seattle 4.
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BELT CONVEYOR EQUIPMENT
IDLERS • TRIPPERS • BELTS • PULLEYS • BEARINGS • DRIVES

PULP & PAPER

New Camachines are better than ever. If you're in the business of making and selling roll products it will pay you to show your customers the quality points of a smooth, modern *Camachine* roll. Here's what your customers like about rolls that are made on fast, efficient new *Camachines*. They like the uniform density from core to circumference. They like the clean cut edges of the strip. They like the straight smooth sides of the finished rolls. They like the durability of *Camachine* rolls in rough handling and shipping. And they like the smooth way *Camachine* rolls unwind, clean to the core. Start delivering modern *Camachine* rolls now and...



For a line on fast new *Camachines* for paper mill winding send for your free copy of the new bulletin "Mile-a-Minute".

***make your customers
ask for more***



Camachine Engineering Company • 61 Poplar Street • Brooklyn 2, N. Y.

Camachine engineers will be pleased to consult with you on any roll production problem.

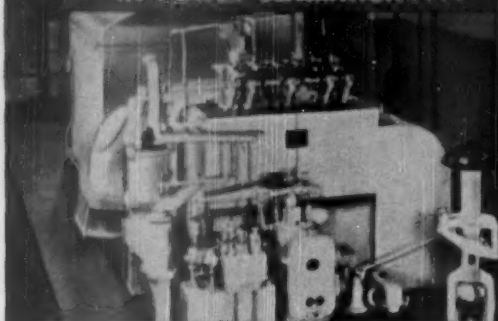
44-521

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, ORE. • 260 CALIFORNIA ST., SAN FRANCISCO 19, CAL.

May 1950

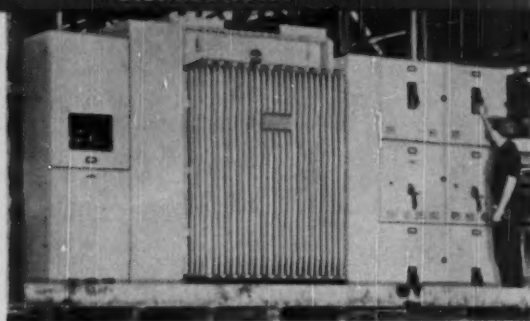
3

IN POWER GENERATION



G-E turbine-generators supply low-cost power as a by-product of process steam. With few wearing parts, they are easily maintained, give reliable service. Shown here is a G-E 3300-kw double-extraction condensing turbine-generator together with top-mounted air-cooler.

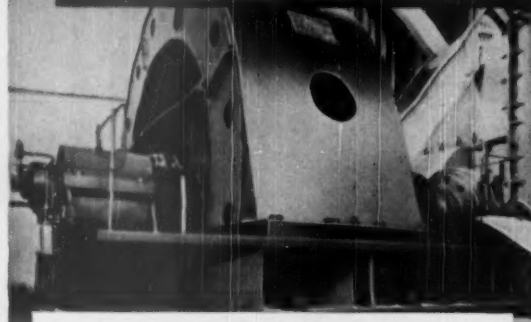
DISTRIBUTION



Reliability plus flexibility for growth are provided by G-E load-center unit substations, as with the 1000-kva unit shown in the photograph above. Team up these substations with G-E metal-clad switchgear and with tough, long-lasting G-E cable for maximum service continuity.

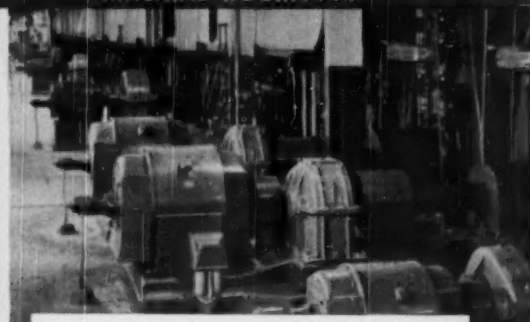
Where do you need PAPER-MAKING

FOR PULP MILL



This G-E synchronous motor, rated 1500 hp, drives a wood chipper. In addition to maintaining constant speed for high production, these high-efficiency low-cost G-E motors will improve your mill's power factor. They are available in high-speed and low-speed types in your required rating.

MACHINE ROOM



With a G-E multiple-generator sectional drive (above), draw is held accurately regardless of load changes, and precision control permits higher speeds, greater output. G-E paper-machine drives, in addition, include every other type made—single-motor, turbine, wet-end helper, and many more.

OR UTILIZATION EQUIPMENT

Centralized control with built-in short-circuit protection is provided for high-voltage motors by G-E Limitamp controllers (as with those above for Jordan drives). G-E Cabinetrol equipment provides compact, centralized control for low-voltage motors, protects personnel.

to cut COSTS?

OR FINISHING ROOM

G-E all-electric supercalender drives, tailored to your needs, hold desired tension at all times. Here stock, unwind, and windup units are all electrically driven. Also available are G-E winder drives that provide accurate control of speed and tension for fast, even-density winding.

**General Electric equipment
and industry specialists
can help you do
a faster, uniform-quality job!**

What's *your* particular electrical need? Generating equipment that provides more power per fuel dollar? Or new distribution facilities that offer greater protection to your personnel and machines? Are you planning to speed production and cut costs with modern electric drives—for wood and stock preparation, paper-machine operation, or final finishing processes?

Whatever it is in electric equipment, General Electric can furnish it in just the type and size to meet your needs—whether it's only a small motor or control, or all the major electric equipment for your paper mill.

No job's too small, no job's too large. And every job benefits from the careful attention of G-E industry specialists. These men, familiar with the electrical problems in your industry, are skilled in assisting in the selection of the right equipment for your individual requirements.

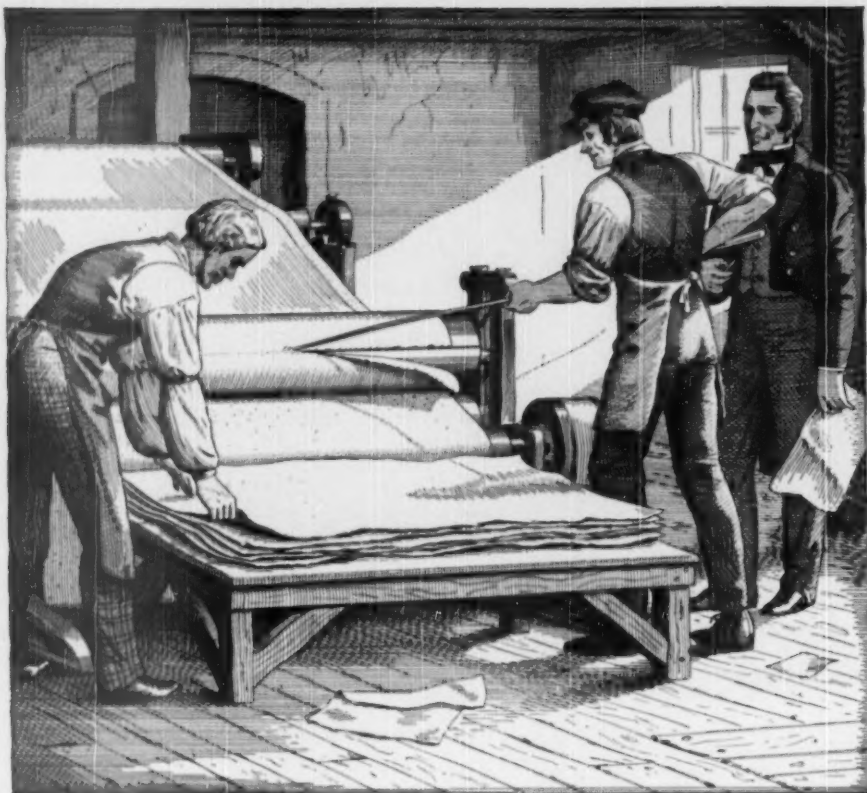
And here's a big plus—a way you can save yourself time and trouble in modernizing or expanding any mill process. Let General Electric apply its Project-Coordination Plan to assist in selection of equipment, and to provide unified control of manufacture and shipment to meet construction schedules. Moreover, General Electric helps you in this way to minimize the endless planning and engineering details of "piecemeal" buying.

An efficient, smooth-working installation assures you faster, lower-cost paper-making. If you are considering mill modernization or expansion, the first step towards your goal is an immediate contact with your G-E specialist in paper-mill electrification. Call on him now—today! Apparatus Dept., General Electric Co., Schenectady, N. Y.



GENERAL ELECTRIC

655-4



Here Began America's Paper-Board Industry

In 1828, G. A. Shryock, using a pulping process developed by William Magaw, began making wrapping paper from straw in his mill at Chambersburg, Pa. Soon he found that when the paper broke and several wet layers of pulp became wound around the cylinder they formed what he described as a "solid and beautiful binder's board." "Many predicted," he wrote years later, "that these boards would

become one of the indispensable products of the world; others said they were not worth as much as the stones in the street."

How right were the former, how wrong the latter, history has long since proved. The boards made in this mill were not only the first successfully made from straw, but they marked the beginning of the vast and essential American paper-board industry of today.

The dramatic story of paper is told in the sound-and-color film, "Paper—Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

F. C. HUYCK & SONS • Kenwood Mills • RENSSELAER, N. Y.



SULPHUR

***Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region**

***BLASTING**

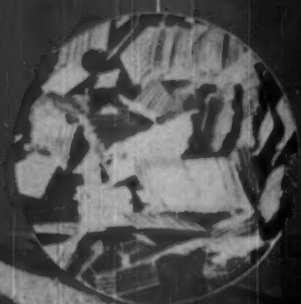
Sulphur is blasted from the face of the vat as it is required for shipment. Vertical holes are drilled from the top of the vat, each hole being charged and exploded. Most of the sulphur is thereby broken into pieces of a size suitable for loading, such large pieces as occur being broken by hand to sizes which can be conveniently handled. Locomotive cranes load the sulphur into railroad gondolas, hopper bottom, or box cars. Such molten sulphur as is shipped is loaded direct from the pipe lines bringing sulphur from the producing wells.



Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.



TEXAS GULF  SULPHUR CO. INC.
75 East 45th St. New York 17, N. Y.
Mines: Newgulf and Moss Bluff, Texas



MAKING MORE UNIFORM CHIPS!

Because Heppenstall E.I.S. Chipper Knives stay sharp longer, they continuously produce a greater volume of uniform quality chips. Such chip uniformity is important for, as every mill man knows, oversized chips require re-chipping—at extra cost. And if the chips are bruised, they require stronger acids, higher pressures, longer cooking—and more cost!

Actually, then, if you're not using Heppenstall E.I.S. Chipper Knives—you're losing money. Why not remedy this situation, just as hundreds of mills have already done, and manufacture on Heppenstall E.I.S. Chipper Knives? For easy identification, note the new design on the ends of all Heppenstall Knives and shipping boxes. Heppenstall Company, Pittsburgh, Pa., Pennsylvania.

HEPPENSTALL E.I.S. Chipper Knives



Corrosion Limited

ESCO

STAINLESS 45

14 IN

No 353

The symbol "ESCO 45" or "ESCO 20" cast on the corrosive handling equipment in your plant means that you will not pay the heavy cost of uncontrolled corrosion, nor suffer the loss of productive capacity which corrosion causes.

These ESCO stainless steels stop such losses before they start.

ESCO alloys 45 and 20 have proved to be exceptionally effective in pulp mill installations. Alloy 45 is an improved type 317, and has been used for years to combat corrosive conditions in food, chemical and petroleum processing plants as well as the pulp industry.

Alloy 20 (Duriron license) is a newer but thoroughly proved stainless steel that has been outstandingly successful in applications involving particularly vicious corrosion.

For certain conditions, other stainless alloys may be more effective. If a special analysis is required, ESCO is prepared to supply it in equipment that combines thorough engineering with closely controlled metallurgy and manufacturing processes.

The ESCO catalog of stainless and high alloy steel equipment outlines our facilities and services. Fill in and mail the coupon, and you will receive a copy promptly. You also are invited to write us of your corrosion problem, including details of corrosives used, their concentrations, temperatures, pressures, etc. We will do our utmost to be helpful to you.

ESCO

STAINLESS AND
HIGH ALLOY STEELS

ELECTRIC STEEL FOUNDRY

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ELECTRIC STEEL FOUNDRY

2166 N. W. 25th Avenue, Portland 10, Oregon

Please send me your catalog on stainless and high alloy steels in process equipment.

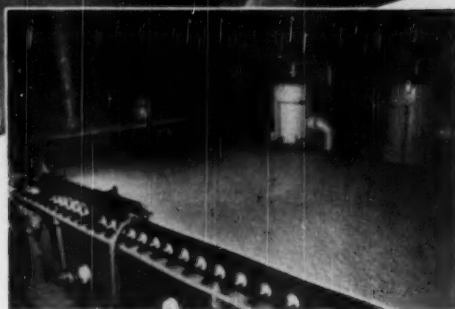
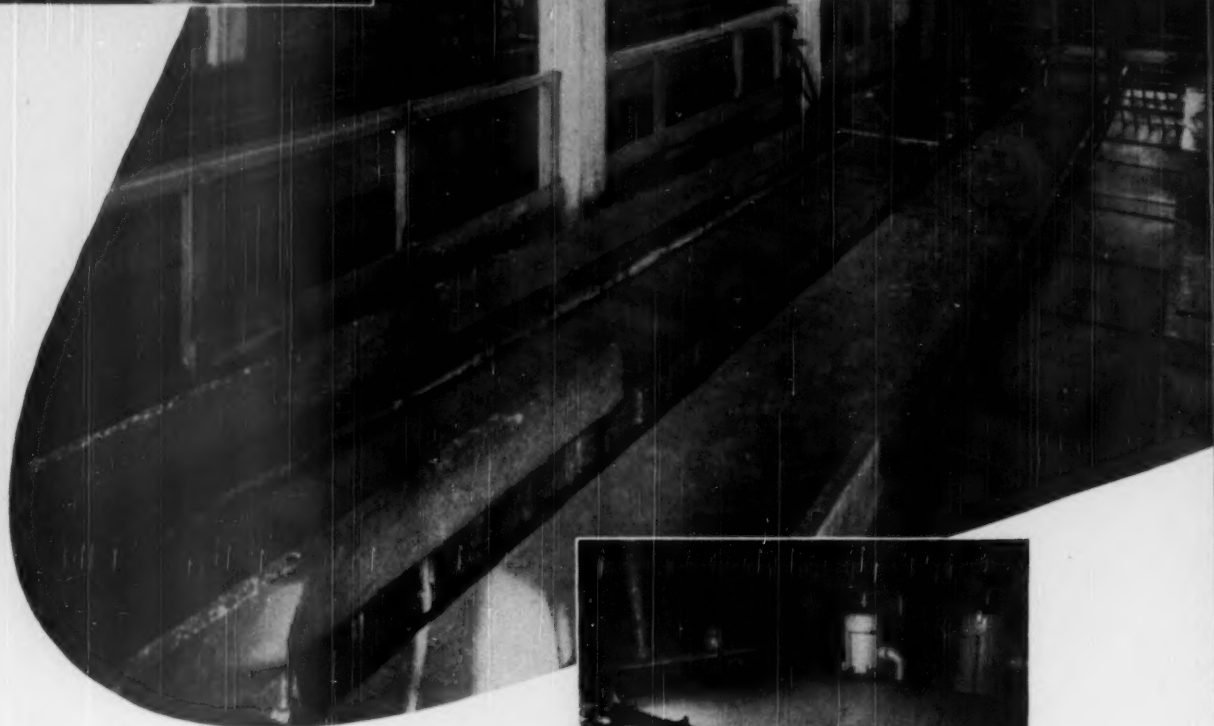
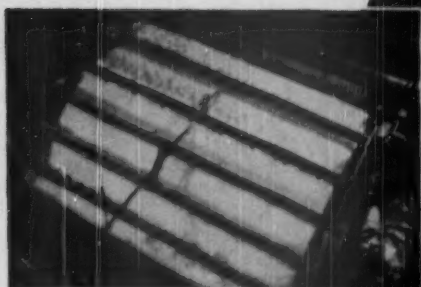
Name

Company

Address

City

Zone State



Puget Pulp goes through a number of screening and purifying processes before it reaches the driers—great, 400 ton machines that receive the almost liquid pulp, drain it on Fourdrinier wire screens, pre-heat it, then pass it over many rolls in the enclosed drying section. The pulp comes out in dry sheets, after a trip of a third of a mile.

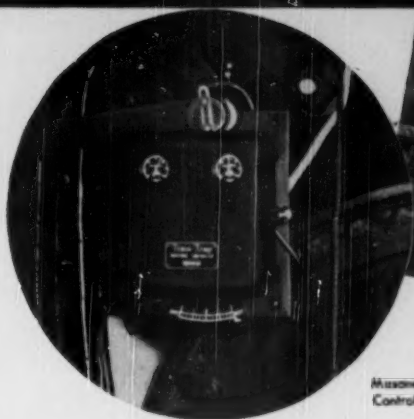
PUGET SOUND
PULP & TIMBER COMPANY
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MASONEILAN

Tenso-Temp Controls

Pay for Themselves

by Maintaining Accurate
Moisture Content



Masoneilan Moisture
Controller

Control panel with a Masoneilan Temperature Controller,
Manual Control Unit, Selector Valve and Pressure Recorder

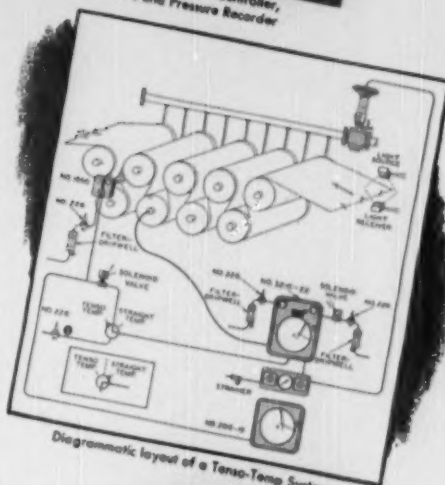
In paper mill after paper mill, Masoneilan Tenso-Temp Controls are paying for themselves by reducing waste, providing more uniform quality and minimizing rejects. That's why you find Tenso-Temp specified and used in new installations and in modernization programs. Consider these additional advantages that make Tenso-Temp worth investigating for your mill.

Tenso-Temp is accurate because moisture contact measurement is averaged for the full width of the sheet. Response is instantaneous... variations in weight across the sheet do not produce false indication and inaccurate control.

Tenso-Temp is sensitive to the slightest variations in moisture content... precisely adjustable to maintain the desired moisture.

Tenso-Temp is economical because original cost is moderate and maintenance and operating costs are at a minimum.

Tenso-Temp is adaptable to any type of paper from condenser to board.



Diagrammatic layout of a Tenso-Temp System

MASON-NEILAN REGULATOR COMPANY

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COCHRANE

ECONOMICAL REMOVAL OF
IMPURITIES FROM INDUSTRIAL
WATER SUPPLIES—TURBIDITY, COLOR,
HARDNESS—REMOVAL OF SUSPENDED
SOLIDS FROM WASTE



COCHRANE'S recognized authority in the field of water conditioning is exemplified in the relatively new field of water clarification by flocculation, in the improved Cochrane Sludge Contact Reactor. This equipment is meeting with pronounced success wherever it has been installed.

The Cochrane Sludge Contact Reactor is distinguished by the fact that the sludge bed is always in suspension, so that the sludge is always present when chemicals and water react.

This is important, in that the precipitates or sludge must not be allowed to settle out

on the floor of the tank if maximum clarification or softening is to be obtained. The water as it rises through the sludge bed is both treated and filtered.

Cochrane Sludge Contact Reactors are applicable to:

1. Municipal and industrial plants for coagulation and/or softening, removal of turbidity, color, hardness, taste and odor
2. Boiler plants for silica removal
3. Fluoride removal, de-alkalization, iron and manganese removal
4. Paper, textile and other plants for process water—recovery of fibre stock and filler from white water

NEW PUBLICATION AVAILABLE

A new bulletin describing the Cochrane Sludge Contact Reactor, and illustrating different applications is just off the press. A copy will be sent on request.

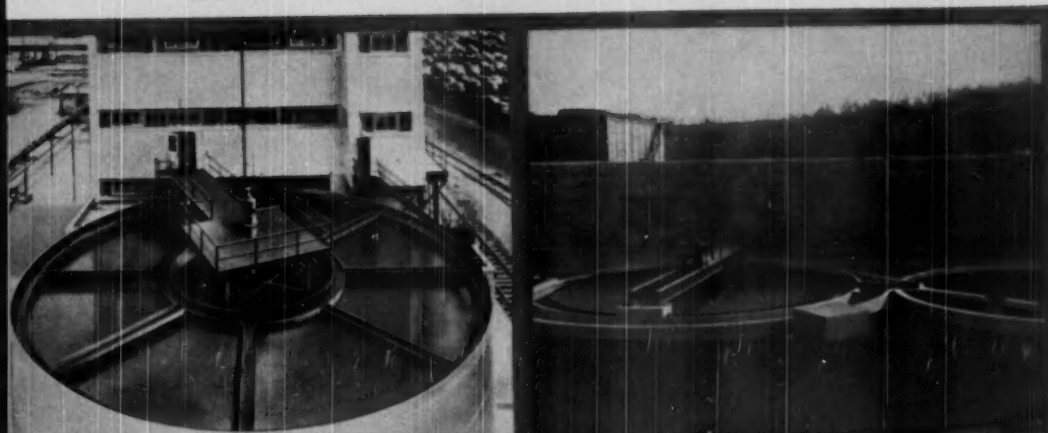
COCHRANE
SLUDGE
CONTACT
REACTORS



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Soft!



This fair-skinned beauty could ask for nothing softer than facial tissue made from SOLKA pulp. A personal product like tissue must be soft, strong, absorbent, pleasing in texture—qualities which SOLKA develops to the maximum.

Brown Company also offers you full use of their Technical Service Division, to help solve your difficult paper problems. Call on them at any time.



This seal assures your customers a product made from high alpha pure wood cellulose. SOLKA is a specification-built cellulose; the best of its kind

BROWN COMPANY Foremost Producers of Purified Cellulose

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Can You *Save* This Tree?

What is CURLATION?

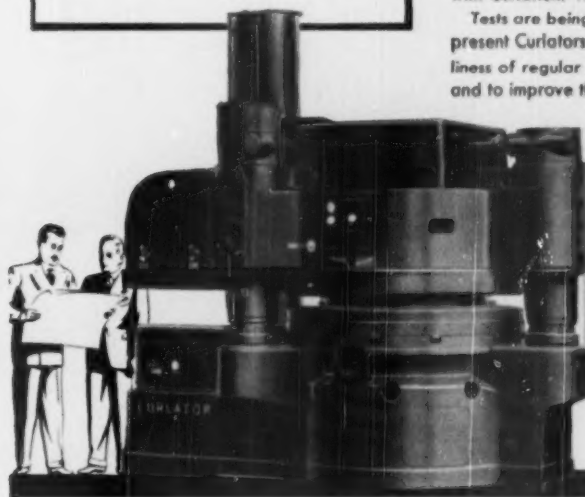
CURLATION is a new mechanical process for improving pulp properties, fully tested and thoroughly proved. Curlation not only produces a permanent change in the shape of pulp fibres, but also exerts a powerful de-shiving action, with negligible change in freeness.

CURLATION MAY BE ABLE TO *Save* 10% OF YOUR WOOD

Yes, Curlation may be able to save 10% of your wood, if you operate an unbleached sulphite mill. Curlators now in commercial operation on newsprint sulphite are making possible the manufacture of sulphite pulp of equal quality to that previously produced, with a saving of 10% in wood plus substantial savings in coal, limestone and sulphur. You, too, may be able to cut costs with Curlation. Why not investigate?

Tests are being conducted on new applications of Curlation. At present Curlators are being used effectively to improve the cleanliness of regular sulphite, to increase the yield of news sulphite, and to improve the bending qualities of folding boxboard liner.

WRITE for new bulletin C-2 on the C-50
CURLATOR. Inquiries are invited.



CURLATOR⁺
Corporation
565 BLOSSOM ROAD • ROCHESTER 10, NEW YORK

*T. M. Reg.—Curlator Corporation, Rochester, N. Y.

Bingham PUMPS

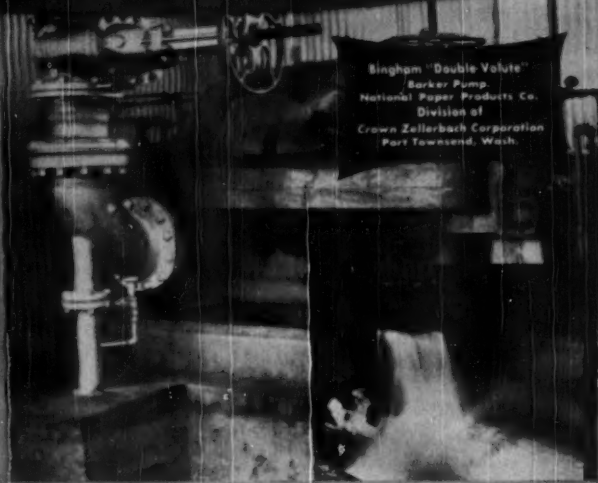
...PRECISION BUILT...FIELD PROVEN

"Double Volute" High Pressure Barker Pumps

One of the important contributions to the pulp and paper industry is Bingham High Pressure Barker Pumps.

Bingham High Pressure Barker Pumps are field proven. Reports from many users show that when hydraulic barkers, using Bingham High Pressure Pumps are installed, tremendous savings have been effected. There are more Bingham High Pressure Barker Pumps now in operation and on order than the total number of pumps of all other makes used for this service.

Bingham High Pressure Pumps, like all Bingham products, are precision built. All parts requiring close tolerances are ground on heavy duty precision grinders. Pump case flanges of Barker Pumps are finished ground to a perfect degree of flatness by a heavy duty grinder, which is typical of the precision machinery in our new, modern plant.



**SEND
NOW**

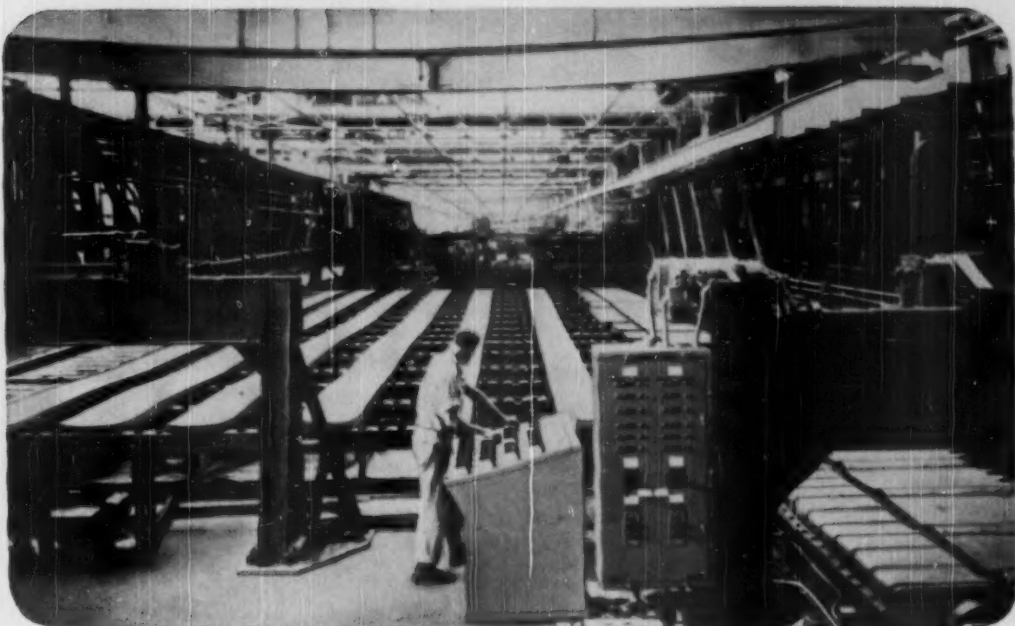
for book describing the principle
and advantages of Bingham
"Double Volute" pumps.



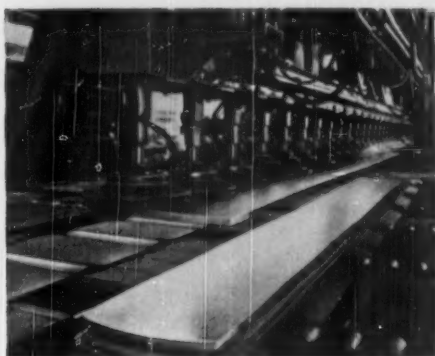
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T O BUILD OR NOT TO BUILD



The smaller illustration is of the vacuum cup handling equipment operating in conjunction with the 2-Hi Cold Rolling Mill. Because of the massive size and weight of individual brass bars, all handling is mechanical.

This Mill, designed and constructed by Stone & Webster Engineering Corporation, is capable of producing the heaviest non-welded coils of strip brass, and includes the largest cold breaking-down mill in America.

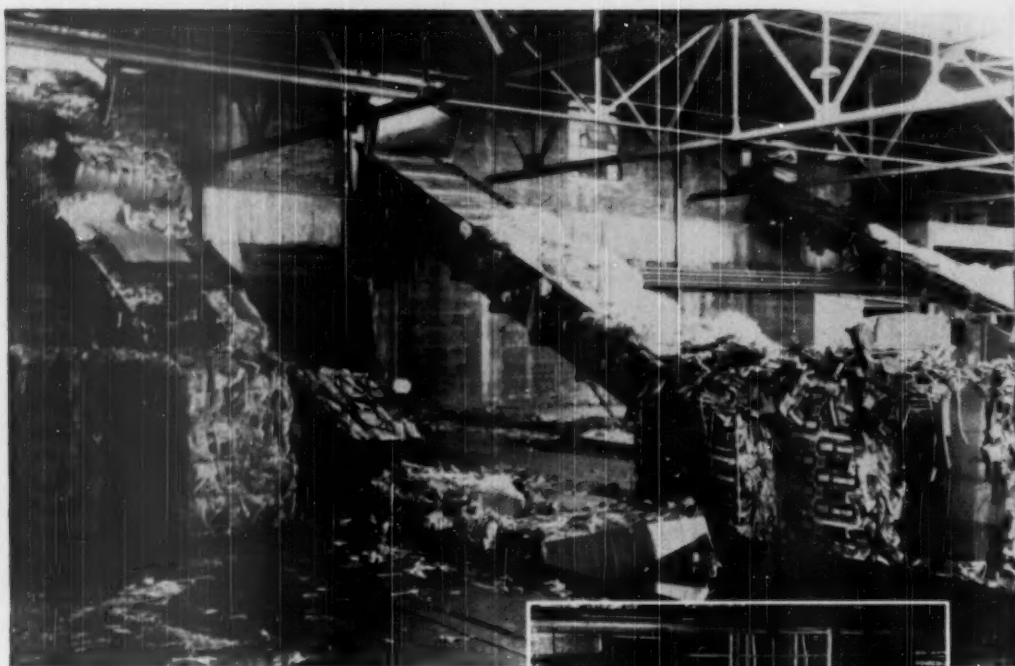
For Scovill Manufacturing Company, Stone & Webster Engineering Corporation carried on continuing studies of the client's production operations over a period of four years. Analysis was made of production pattern for anticipated requirements, with costs of production in proposed mills compared with costs in the existing plant.

Companies today, faced with improving production facilities or lowering cost of plant operation, find comprehensive engineering reports by Stone & Webster Engineering Corporation valuable in developing sound, long range production plans.



STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.



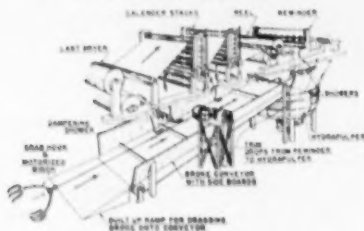
EQUIP YOUR HYDRAPULPER TO OPERATE AT CAPACITY

A conveyor-fed Hydrapulper will out distance a manually-fed job every day in the week. It will slush up to capacity. It will take the charge at a more uniform rate. It will effect a labor-saving.

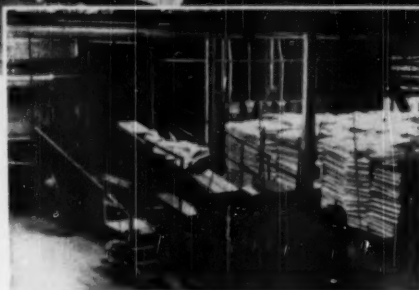
Shartle designs and builds conveyors for either continuous or batch feeding—and to suit the mill layout.

Consider equipping the Hydrapulpers you now have with conveyors. Include a conveyor in the plans for the one you are about to order.

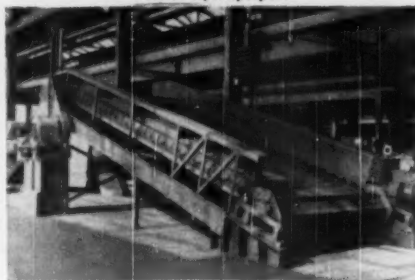
Shartle Bros. Machine Co.
MIDDLETOWN, OHIO



Bridge Hydrapulper conveyor installation.



Double conveyor for delivering virgin pulp to batch Hydrapulper.



Conveyor in process at Shartle Shops.

DILTS MACHINE WORKS, Fulton, New York
DIVISIONS of THE BLACK-CLAWSON COMPANY, Hamilton, Ohio
WESTERN SALES OFFICE: Mayer Bldg., Portland, Oregon
ASSOCIATE: ALEXANDER FLECK LIMITED, Ottawa, Canada
SUBSIDIARY: B-C INTERNATIONAL, LTD., 16 Catherine Place,
Victoria, London S.W.1, England

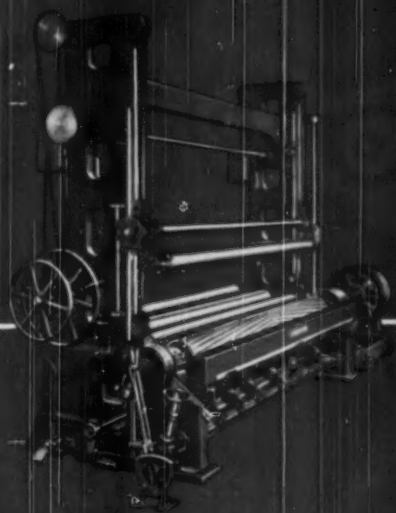




how long is a CH'IH?

This Chinese "foot" varies from 11 to 15.5 inches, depending on the locality. No size of a Langston Slitter and Roll Winder is ever "short-measured" on dependability, long life, speedy production of first-quality rolls.

Samuel M. Langston Company, Camden, N. J.



SLITTERS

Langston

ROLL WINDERS

"NO CALENDER CAN BE BETTER THAN THE ROLLS IN IT"

A large, dark industrial machine, likely a paper mill, is shown in silhouette. A large, white roll of paper or fabric is being processed by the machine, extending from the left towards the center. The machine has various gears, rollers, and structural components visible in the background.

B. F. PERKINS & SON, Inc.

ENGINEERS AND MANUFACTURERS
HOLYOKE, MASS.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

Reduce Noise and Vibration

with Pacific-Western
Dryer Gears

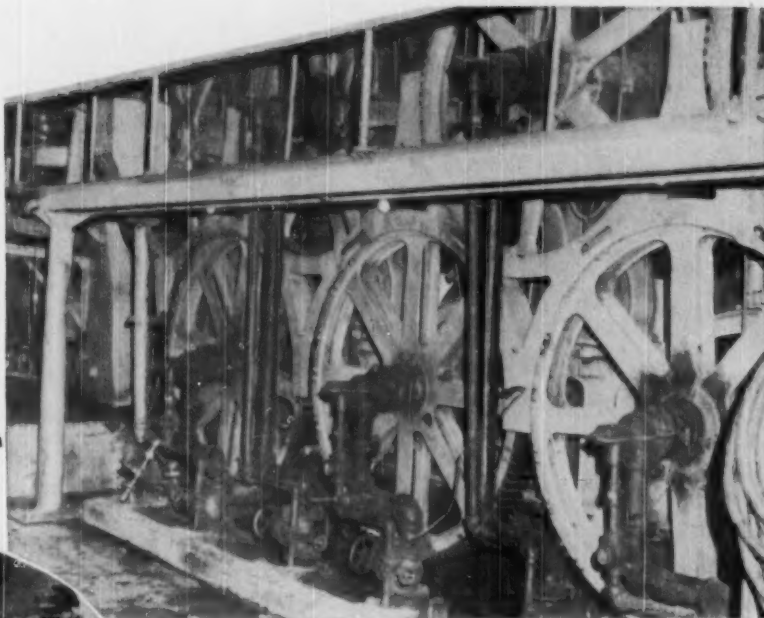
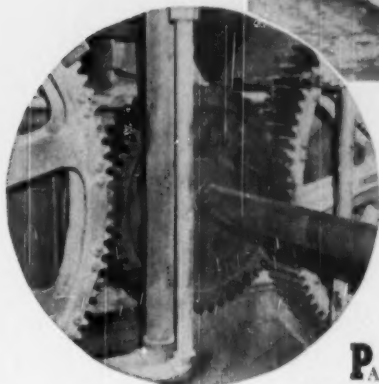


Illustration above shows bottom roll Pacific-Western special dryer gears meshing with top roll steel gears in paper drying machine.



In photograph at left Pacific-Western special dryer gears, driven by pinion, serve as initial drive units for two gear trains on paper drying machine.

PAPER drying machines are capable today of greater speed and more production than ever before. This increased output throws a severe strain on steel dryer gears and often results in excessive vibration and noise which shortens the life of the gears. Replacement of dryer gears is costly and frequently causes expensive downtime.

Pacific-Western application engineers studied the causes of gear failure and determined how to make dryer gears last longer. Special gear materials were developed for this purpose. In addition, per-

fect mating of geared surfaces was assured by hobbing dryer gear teeth more accurately than had been the practice.

For more than twenty-five years these carefully designed Pacific-Western dryer gears have been used both by paper machine manufacturers in original equipment and by operators for replacement gearing. To provide fast customer service, patterns are available at Pacific-Western plants for most standard machines.

Reduction of vibration and noise in your own plant can be achieved with Pacific Western dryer gears. Skilled Pacific-Western application engineers are ready to give your power transmission problem immediate attention. Their recommendations are backed by over half a century of Pacific-Western service to the paper industry.

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PACIFIC GEAR
& TOOL WORKS

WESTERN
GEAR WORKS

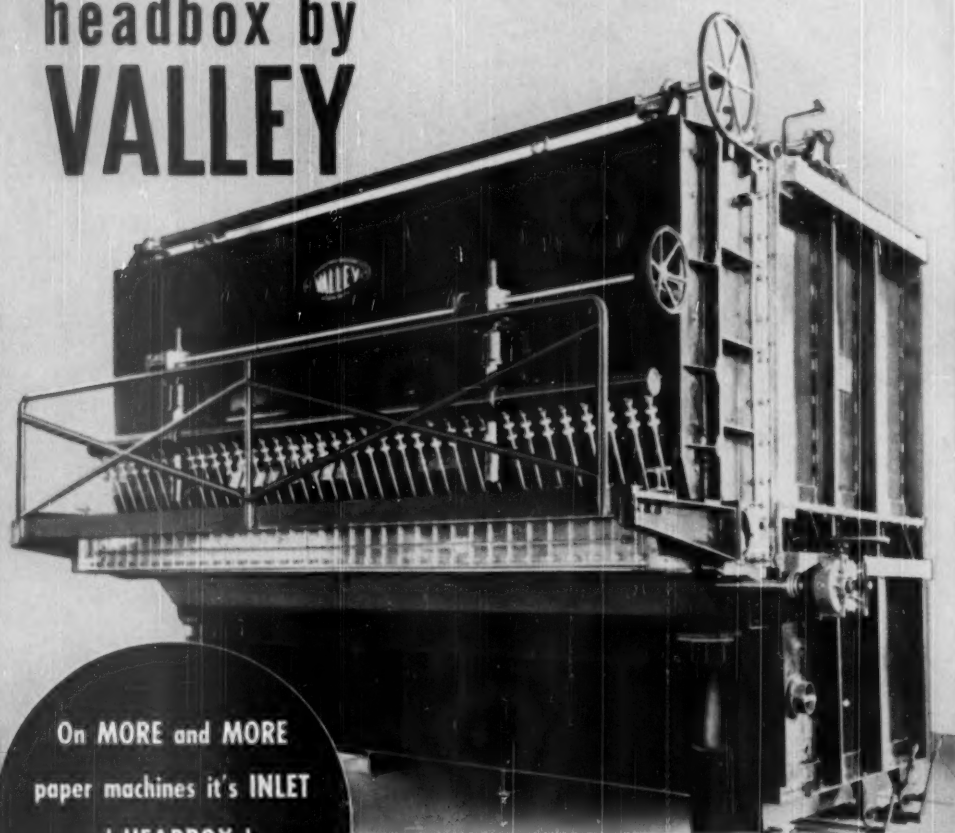
PACIFIC-WESTERN

GEAR PRODUCTS

FORMATION
CALIPER
LEVEL SHEET
INCREASED SPEED
HIGHER TEST

THIS IS ON
MINNESOTA & ONTARIO PAPER COMPANY'S
NEW NO. 4 MACHINE

... it's inlet and
headbox by
VALLEY



On MORE and MORE
paper machines it's INLET
and HEADBOX by

VALLEY

VALLEY IRON WORKS CO.
Appleton, Wisconsin

Design for Better Bleaching...

Sandy Hill—KAMYR

Pulp Bleaching System

Pulp bleaching methods developed by the Scandinavian firm of A/B Kamy and recognized throughout the world for their superiority are available to the American paper makers in the Sandy Hill-KAMYR Pulp Bleaching System.

Kamy attacked the problem of pulp bleaching at a time when direct chlorination first made its appearance on an industrial scale. Until then progress had been by steady but slow evolution, but this process started a period of revolutionary development. Kamy made its start by introducing specially designed circulation pumps. Special Kamy items already in use throughout the pulp industry were ultimately to form part of the KAMYR BLEACHING SYSTEM.

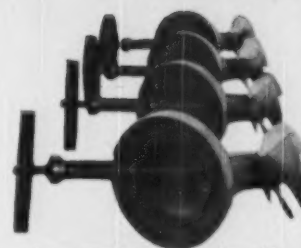
The soundness of Kamy's theories developed and applied during these pioneering days has been proven by their adoption throughout the trade. Kamy's emphasis on separate washing after each treatment, though long scorned, came to be accepted as standard procedure in all modern bleaching. The Kamy vacuum washer meets any demand as to capacity, efficiency and resistance to chemicals.

Kamy's solution for the efficient mixing and absorption of chlorine offers one of its strongest claims of superiority. Installation of a circulation pump at the base of the chlorination tower converts the bottom into a mixing chamber. The inlet and outlet of the pumps are connected tangentially to produce a strong horizontal circulation. The chlorine and pulp are thoroughly mixed. The pulp rises to the top of the tower and flows to the following washer.

Pre-Impregnation Process

The Kamy patented process for pre-impregnation at low density for high density pulp assures excellent impregnation thus producing a more uniform pulp, a higher alpha content and an increased yield. Sandy Hill's staff includes an engineer with more than 20 years world-wide experience in the Kamy organization available for consulting services.

A brochure on the Sandy Hill-KAMYR bleaching process, just off the press, will be sent upon request.



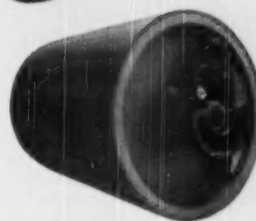
Kamy Circulation Pumps—Type CT



Kamy Transport Pumps



Kamy Feed Pumps



Kamy Vacuum Washer



Sandy Hill Iron & Brass Works

Hudson Falls, N. Y.

Some Leading Items:
Fourdrinier Paper Machines
Yankee Fourdrinier Machines
Cylinder Paper Machines
Feltless Wet Machines

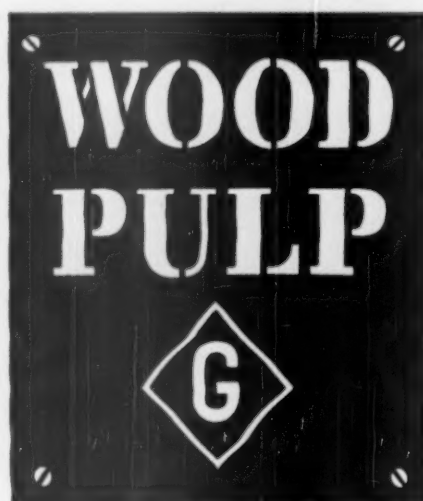
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PULP & PAPER

—AND "CELLULOSE AGE"—MAGAZINE OF THE INDUSTRY COVERING NORTH AMERICA
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Business Rep.: M. F. Bosworth. Field Editors: L. H. Blockerby, Stuart Lotts, A. W. Ponsford, Alvin Klate.
Forestry Editor: W. E. Crosby. Readers and Advertisers Service: Virginia Moonagh, Dorothy Bell.

PRINCIPAL OFFICES

NEW YORK—370 Lexington Ave. (17); Tel. MU 3-9295.

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Necessity of Reasonable Profit

Unless an industry can operate on a reasonable profit margin, it cannot afford those essential expenditures which will lead to greater efficiency and to the necessary improvements in manufacturing and merchandising practices. Only out of profits earned can we do those things which must be done if better goods are to be produced and distributed at lower prices.—GEORGE OLMSTED, JR., of Boston, president of the American Paper and Pulp Association, and president of S. D. Warren Co.

Washington Appointments

Those mill executives who have long held fast to the proposition that in the National Security Resources Board (new name for the WPB of World War II) there should be top men familiar with, or out of, the pulp and paper industry, have been critical of the appointment of Mathias Niewenhaus, recently made chief advisor on forest products to the NSRB. Such criticism was not aimed at Mr. Niewenhaus but at whatever public officials were omitting a pulp and paper man from the NSRB picture, although it is presently almost a dormant bureau. It may pick up anytime.

Mr. Niewenhaus' appointment, together with return to NSRB recently of John Mylrea, prominent retired lumberman, did indicate a revival of interest in this adjunct to a defense program or actual war.

Mr. Niewenhaus was deputy director of the Lumber Division of the old WPB, and remained with CPA during the conversion to peace. Later he joined the Department of Commerce as chief of the building materials negotiating division in the Office of Industry Cooperation. His most recent assignment has been as chief of the Forest Products Branch of the ECA. Prior to the war he was president of a general contracting company.

These are excellent general qualifications for a Washington assignment which may some time have an important bearing on our national welfare and safety—if not right now. As for Mr. Mylrea, he is certainly highly respected by his neighbors in the pulp and paper industries of Wisconsin and by many others who know him.

But the lessons of the last war are still fresh in the minds of leaders in this industry, if not in some Washington offices, and one lesson was that once the essential pulp and paper production is curtailed, as it was so unwisely done in 1942, it is a herculean job to build it back up again to produce the paper and pulp which were so necessary for winning the war.

It wasn't until men familiar with the pulp and paper field—and respected leaders in that field, also—were summoned to Washington that required pulpwood was produced and the closed or curtailed mills were able to start up again.

Pulp and paper is the 5th largest industry in the United States—the paper industry alone is the 6th largest—and this fact should warrant the summoning of men with experience in this industry to Washington; or at least when, and if, NSRB activities become more significant.

Name Needed for the New Industry Event in the West

Something new in the way of association activities is the tri-weekly meeting which will be held for the first time in Seattle, May

11-13, when the Pacific Coast Division of the American Superintendents, Pacific Coast Section of American TAPPI, and the Western Branch of the Canadian Technical Section team up as joint sponsors.

The plan is to perpetuate this as an annual event, perhaps alternately holding it on the U. S. and Canadian sides of the international border.

Some of the leaders have been thinking it would be good promotion to dream up a catchy name for the event. The long formal names of the three sponsoring groups (there are even more words in their correctly formal titles than even we show above) are a bit on the cumbersome side and make it difficult to concoct a simplified name for the meeting.

Carl Castle, of Dow Chemical Co., who is handling the publicity, has given considerable thought to the idea and he suggests:

"WIMPPPI"—which would be pronounced just like the name of that hamburger addict in the Popeye comic strip—"Wimpey"—and it would be short for Western International Meeting of the Pulp and Paper Industry.

Like TAPPI's Paper Week in the east, there would be a WIMPPPI weekend in the west every year. We suggest it's worth considering until someone comes up with a better one.

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WATCH for the annual NORTH AMERICAN REVIEW NUMBER



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NEWS IN BRIEF • • • AND BULLETINS

Bleach Additions at Brunswick

Recent loan negotiated by Brunswick Pulp & Paper Co., Brunswick, Ga., with prominent life insurance company, for installing two hypochlorite towers and new washer, E. J. Gaynor, III, vice president and general manager tells PULP & PAPER. "This will allow us to meet higher brightness competition without losing any strength characteristics. Towers and washers will be in brick structure joined to present bleach plant," Mr. Gaynor said.

West Tacoma Stands Pat

Directors of West Tacoma Newsprint Co., West Tacoma, Wash., voted against proposed purchase and installation of second newsprint machine, under discussion for some time. There will be no further expansion at this time. Actually, Cellulose Engineers of Seattle, operators of the mill for 14 Pacific Coast newspaper owners, have stepped up production from 15,000 tons a year, which it undertook to supply when long-idle mill was restored to operation in 1946, to 25,000 tons. This done by adding grinder, modern screening, other improvements.

May Build British Columbia Mill

Sir Eric Bowater, head of Bowater Paper Corp. of England and Bowater's Newfoundland Mills, will visit British Columbia this spring and, in interview on departure from Southampton, says he will take further look into prospects of building pulp and paper mill in Western Canada. Engineers representing Bowater's have spent several months on Vancouver Island. Reports linked Bowater with Gold River timber tract on west coast, but W. Clarke Gibson, president of Tahsis Co., principal holders of timber, told PULP & PAPER he could not account for their origin. Canadian Western Timber Co. is proceeding with plans for dissolving pulp mill at Duncan Bay. Would be third new post-war mill on island. It is generally agreed if Bowater's expands, it will be in British Columbia.

Erickson Back With C-Z; Goes Abroad

E. W. Erickson, assistant manager of manufacturing in charge of pulp production, Crown Zellerbach Corp., who has been on loan to Fibreboard Products Inc., as consultant in building new San Joaquin Division plant, East Antioch, Calif., returns to Crown Z, will have office at San Francisco headquarters. Accompanied by Mrs. Erickson, he is on trip to Finland, Norway, and Sweden, to study pulp manufacturing.

Scott Will Install 177-Inch Beloit Machine

New tissue machine to be installed at Scott Paper Co., Chester, Pa., as announced in these news pages recently, is to be 177-inch Beloit machine, according to direct word from Chester mill where it was stated construction contract has been definitely cleared with Wisconsin firm.

Hydrolysis of Semi-Chemical Wastes

Preliminary tests are underway to determine possibility of applying heat hydrolysis process, now under investigation for treating waste sulfite liquor, to semi-chemical waste liquors. Exploratory work being conducted at Oregon State College, Corvallis, Ore., where necessary equipment is in operation.

New Powell River Records

Powell River Co., Powell River, B. C., now claims to lead the world in newsprint output. On March 21, production from eight machines was 1,021.6 tons in 24 hours, two decimal points higher than record achieved month previous. Powell River's new No. 8 machine produced 209.8 tons March 22, nearly two tons more than previous high.

James Fish Manager at Fitchburg

James Fish, who resigned as of March 20 as first vice president of American Pulp and Paper Mills Superintendents Association, accepts position as mill manager at Fitchburg Paper Co., Fitchburg, Mass. This is 105 tons-per-day capacity, writing, book, specialty paper mill with five Fourdrinier machines. Mr. Fish had for a short time been paper mill consultant and it was stated because of pressure of this work, he felt it necessary to resign from association post. Was in line to become president this June. Formerly had been director of manufacturing, Erving Paper Mills, Erving, Mass., and was with Brown Company in Berlin, N. H.

Loddengaard Succeeds Enders

Directors of United Board and Carton Corp., Syracuse, New York, elect P. M. Loddengaard as president. Formerly executive vice president, Mr. Loddengaard succeeds Fred Enders, who is named chairman of the board. W. S. Stuhr, ex-chairman of board, elected chairman of executive committee. United Board and Carton operates three board mills at Lockport, N. Y.; Thomson, N. Y., and Urbana, O., and five carton plants at Syracuse, Victory Mills, Brooklyn and Cohoes, N. Y., and Springfield, O.



Our Cover Picture:

One of the most noble and majestic scenes in all of America—to use the words so often misused in travel agency literature—is shown in our cover picture (replica above) and this is to be the setting for a new Bleached Kraft Pulp and Paper Mill at Lewiston, Idaho, which Potlatch Forests, Inc., hopes to have in production by Jan. 1, 1951.

A PULP & PAPER editor snapped this picture on a 35 mm. film at 1/50 sec., 8. opening. The Bitter Root Mountains show over 100 air miles eastward, joining the Rocky Mountains 200 miles to the southeast.

Showing in the picture are lumber mill and new plywood plant of Potlatch Forests, Inc., also nearly complete new general office building. Foundation work already completed for new pulp and paper mill can be seen in foreground near other buildings. Structures are concentrated on bulge of land jutting into Clearwater River, northeast of Lewiston (15,000 population, primarily dependent on Potlatch industries). Lewiston is to right in this picture and the Clearwater joins the mighty Snake River below the town.

This picture was taken half-way up famous Lewiston Hill. An 11-mile long spiral highway (U. S. Highway 95) scales this hill and is Lewiston's main road connection with Spokane, 112 miles to the north, and all points west and northwest. Below is view of hill and highway from the South. Lewiston is at lower left corner; mill site at lower right.



The Potlatch paper mill site covers 7 acres. The mill will have many modern features, such as hydraulic barking, pushbutton materials handling, bleach plant, a versatile Fourdrinier machine, etc. Timber unsuited for lumber from vast Potlatch forests and left-overs of saw-mills and plywood plant will be used.

A team of former Southern kraft industry veterans is pushing this plant to completion at top speed.

William P. Davis, ex-I. P. Southern Kraft assistant production chief and chief engineer, now heads all Potlatch activities as president. Besides assistance of Potlatch's own engineers and timber use experts, he has: J. Roland Wilber, formerly of Southern Paperboard and Crossett Paper Mills, as manager of Pulp and Paper Division; Joseph Betts, I. P. Southern Kraft engineer for 13 years, as chief engineer; O. B. Smith, 15-year I. P. Southern Kraft veteran, as resident engineer; James Pettigrew, Duke U. grad. with I. P. Southern Kraft and I. P. Container Divisions 13 years, as electrical engineer.

A SUPT.'S PROBLEMS

PSYCHOLOGICAL -- AND MECHANICAL

Here's a story about the psychology of a paper mill superintendent. A story which, perhaps, is far more typical than it should be in this industry.

Incidentally, it is also a story in which we are able to set down the ideas of an experienced superintendent on how to stop press roll shell marks. Granted that the rubber covering of press rolls by Manhattan and Stowe-Woodward in the east, and by Griffith and Huntington mills in the west, have greatly reduced this worrisome problem, they still haven't entirely obliterated the need for some occasional show of ingenuity on the part of a smart superintendent. The felt makers have helped a lot, too, but it still takes a few weeks to get a felt, as a rule. And the problem is still a serious one, at times, in lightweight krafs and many higher grades.

This story was related to PULP & PAPER in the mill office of the Inland Empire Paper Company, near Spokane, Wash. Jerome L. "Joe" Janeczek (right), veteran general superintendent, who is known in mills from east to west, told the story, and Assistant Mill Manager Myron Black, and Assistant Superintendent Hardy J. Forkner listened with as much interest as the writer.



They agreed it was worth publishing here, not only because the information might have some mechanical value to a few superintendents elsewhere, but because it revealed a psychological problem that bothers a lot of superintendents.

Mr. Janeczek's qualifications for talking off the cuff, in this way, is conceded by all who know of the years he has rolled up in service in the famous Cherry River Paper Co. in West Virginia—now extinct but a famed "training mill" for many pulp and paper men around the country—at Peshtigo, Wis.; Ontonogan, Mich.; Rothschild, Wis.; Kalamazoo, Mich.; Powell River, B. C., and Camas, Wash., before he arrived at Inland Empire in '36.

Since 1924 he has been a superintendent, and it was while he was serving in that position at Peshtigo, 48 miles north of Green Bay, that he had an unforgettable visit from a fellow superintendent.

A lot of superintendents would know his visitor if we named him—but we won't. He came from a mill up in Northwest Wisconsin. It seems that he was having a problem and all his efforts to solve it just didn't quite work.

So, as a lot of superintendents in this industry have been doing, for these many years, he packed his bag with toothbrush and a pint to serve against the cold winter, and a few other essentials, and he started off. There's one thing about pulp and paper, it has always been more or less a cooperative industry—mostly less in the old days, perhaps, but most of the useful intelligence developed, even then, was through shop talk when superintendents got together.

Our hero started calling on mills down the Wisconsin River Valley. He started off hopefully enough. But he was beginning to get a bit tense when he reached the last of the mills in that valley. He shifted eastward, over to the Fox River, running north to Green Bay. And he followed this river of mills. He ran out of mills there, too, but kept on going north till he got to Peshtigo.

He was practically a physical wreck when he walked into the office of J. L. Janeczek. Mr. Janeczek turned up the coffee urn, and as they talked, he soon guessed what was the matter.

This visitor, like so many superintendents before him and so many still doing the same thing today, had a problem he wanted to solve. He hoped someone he visited would come out with the solution; without being pointedly asked. But his luck had been bad. He was too proud to come out in the open and ask—he was

unwilling to admit his null was not running as good as the next. And so he had stewed and fretted his way down two valleys through a whole "raft" of mills.

His experienced host guessed the situation; persuaded his guest to let his hair down. And—you guessed it—Mr. Janeczek was able to give the visitor the right answers for stopping press roll shell marks on paper. Which, according to this particular superintendent's experience, are:

First, ease up on the weights.

Second step, take the levers off.

Third step, start jacking up the top roll, which usually can be raised clear off if necessary.

In his experience at least, one or more of these steps have been sufficient. Bulkier felts will also help to overcome shell marks.

The guest's face brightened up. Mr. Janeczek could practically see him getting well right in front of him and a hospital was probably cheated of a patient.

But here's the payoff. At dinner that night, Mr. Janeczek told him:

"If you had only asked when you got to the Marathon mills at Rothschild you would have saved yourself all that misery and you could have gone back home from there. They would have been glad to tell you. I know positively you could have got your answer there—and probably several other places, too."

COLORADO PULP TIMBER IS SOLD

Columbine Development Co., Grand Junction, Colo., which is headed by Preston Walker, manager of the Grand Junction Sentinel, outbid Cellulose Engineers Inc., Seattle, who were associated with T. W. Schomberg, Denver lumberman, in the Forest Service's auction sale in Washington, D.C., on March 29, of a huge tract of beetle-killed spruce in Colorado. It is required that this timber be used for a 200-ton pulp mill, to be built near Glenwood Springs, Colo.

Columbine agreed to pay \$16,200,000 for the use of 4½ million acres of timber, and their plan is to make kraft pulp and newsprint.

The Grand Junction organization, which has been seeking other newspaper support in the Rocky Mountain area, went up to a winning bid of \$3.10 a cord, which means they will pay a total of \$3.60, as there is another fixed charge of 50 cents per cord for Forest Service improvements and road maintenance.

The Cellulose Engineers' last bid, made by Vice President Herman Simpson, former manager of mills in Washington and British Columbia, was \$3.05. The two competing bidders started from the Forest Service minimum of 75 cents a cord.

Nearly three-fourths of the timber is beetle-killed Engelmann's spruce and the rest consists of both live and insect-killed spruce, pine and alpine fir. Most of the spruce is in White River National Forest. A large part is in rough high terrain, where snows restrict logging to about six months of the year.

A \$25,000 earnest money payment has been made and by July 1, 1951, under Forest Service rules, Columbine must show progress in financing and getting orders placed, and must show \$10,000,000 in hand for construction and other expenses. Morris Mitchell, New York, is the engineer for this group.

A 30-year contract is to be signed at that time with the Forest Service.

MAY GO WEST IN '51

Supts. Likely to Meet There

A Superintendents Association National Convention in the Pacific Northwest during July, 1951—instead of 1952, as previously planned—was in prospect as this issue went to press, because of a shakeup in the top hierarchy of that organization.

Election of Charles E. Ackley (left), paper mill superintendent of the West Linn, Ore., mill, as the next president of the American Pulp and Paper Mill Superintendents Association, became a virtual certainty following the resignation of James Fish of Erving, Mass., as the first vice president. Mr. Fish, no longer a superintendent, retired because his new duties as Fitchburg mill manager will occupy his full time.

Mr. Ackley is second vice president and, according to precedent, he moves up in the hierarchy and undoubtedly will be elected president when the association meets in Chicago, June 8-10.

Thus Mr. Ackley's term at the helm would run until the 1951 convention. For several years there has been a tacit understanding in the association that when it holds its first national convention in the Far West, it would select the year when Mr. Ackley, the only Far Western member of the hierarchy, could be the presiding officer. Thus, this of necessity, would have to be during 1951, if there are no unforeseen upsetting developments between now and the meeting in Chicago.

The sentiment among leaders on the Pacific Coast seemed to be overwhelmingly in favor of holding the meeting in Portland, Ore., which is near the largest concentration of mills, and for a meeting in July, instead of June, which has usually been the month for a national convention. It is expected that unless unforeseen obstacles arise the national trustees of the Superintendents Association will defer these matters to the wishes of the Coast executive committee, which would have chief responsibility in staging the affair.

A. C. McCorry, pulp mill superintendent, St. Regis Paper Co., is slated to advance to the chairmanship of the Pacific Coast division in 1951 and in that capacity he would be a principal aide to Mr. Ackley in directing the affair.

Curiously, a resignation among the vice presidents was one of the reasons for abandoning a Pacific Coast convention planned several years ago; and now a similar unexpected development appears to be hastening the long-dreamed-of Coast meeting.

During the war, Niles Anderson, now a consultant in Toronto, resigned as vice president just as he was on the threshold of advancing to the president's chair, his reason being the pressure of his new duties—at that time—of being vice president and manager of the Marathon mill being built in Ontario. He had been a Pacific Coast manager and superintendent, and it was planned to have a Coast convention when he assumed the presidency.

Another reason for postponing the Coast convention, of course, was World War II.

It wasn't until 1946 that the Pacific Coast was able to land another man in the hierarchy. In that year Charles Ackley was elected fifth vice president, and from that date it was contemplated that when he moved up to the presidency, the association would hold its first Coast meeting in history.

Mr. Ackley's Career

Mr. Ackley is a native of Michigan, but his first job in the industry was at Camas, Wash., where he worked up to machine tender in seven years. Then came a 7-year period at Consolidated Water Power & Paper Co., Stevens Point, Wis., and at Kalama-zoo Vegetable Parchment Co., Parchment, Mich. He returned west to stay in 1926, working in the Willamette Valley and at Grays Harbor mills. He left the superintendency at Crown Z's Lebanon, Ore., mill and was on special assignment when he first became a national officer of the association. Then he became paper mill superintendent at the Crown newsprint mill in Port Angeles, Wash., and about a year ago succeeded to that position in the big West Linn mill, which has a capacity of 525 tons a day of coated paper, directory, mimeograph, rotogravure, wrapping and newsprint on nine Fourdriniers.

TRI-WAY CONVENTION PROGRAM

To Hear of Atomic Techniques, MgO Results

The first three-way meeting ever held on the Pacific Coast—American Superintendents and TAPPI groups, both combined for first time with the Western Branch of the Canadian Technical section—is programmed for Seattle, at the New Washington Hotel, May 11-13.

Dr. C. B. Purvis, professor of cellulose

chemistry at McGill, leading authority on cellulose, will be a speaker.

Svarre Hazelquist, technical director, Longview mill, Weyerhaeuser Timber Co., and Charles Rogers of Babcock & Wilcox Co. will report on progress of magnesia base sulfite recovery system at Longview, Wash.



Dr. J. L. McCarthy, University of Washington, will report on some sulfite waste liquor processing schemes which were tried out or studied at the University under the Washington state pulp mills' financial grant for research.

There will be three Canadian papers—Cowan screening of western groundwood, by A. R. Ferguson of Pacific Mills; Heat transfer from hot moist air in spray towers, by D. L. Stewart, of Powell River Co., and another to be arranged.

H. Radford Russell, assistant general superintendent, Everett Pulp & Paper, will discuss pre-conditioning of paper; the Camas Paper School will be described by Walter Jacoby, technical director, Crown Zellerbach, Camas; and mill responsibilities will be discussed by E. Bathalamy of Camas.

Other distinguished guests are to be lined up for general meetings.

A full program for the women includes dancing two nights and golf and luncheon and matinee party at the University of Washington Penthouse theater for "Much Ado About Nothing."

Joe McQuaid of Esco has arranged the golf tournaments with 9 holes for women; 18 for men, and a special demonstration by Ed "Porky" Oliver, nationally famed competitor who is now a Seattle pro.

New Road Between Bastrop and Crossett

Many industry travelers who visit Crossett as part of their task have been enjoying or will enjoy the completion of the improvement of the highway between Crossett, Ark., and Bastrop, La. This provides an all-weather blacktop and concrete route between Crossett Paper Mills and the Southern Kraft Bastrop and "Louisiana" mills.

New Rayon Plant

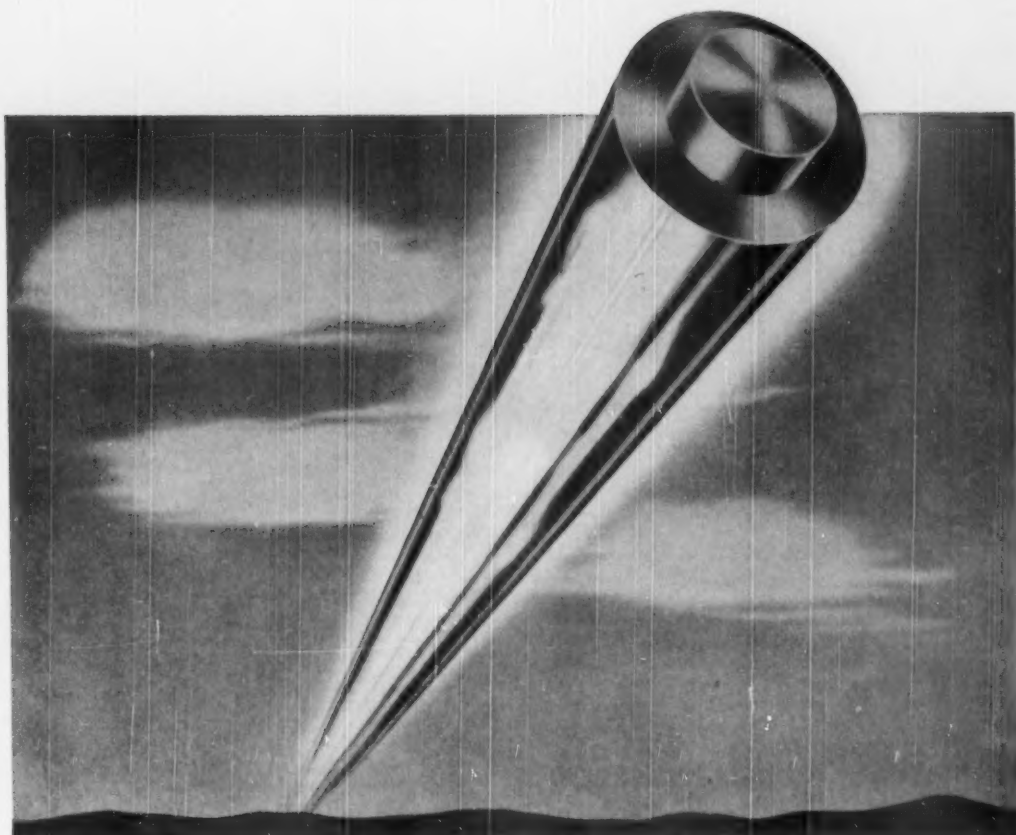
Textron Southern, Inc., will build a \$4,000,000 filament rayon weaving plant at Williamson, near Anderson, S. C., to be completed for April. It will have 960 looms, employ more than 300. Textron operates four other plants in the South.

Ray Bennett at Clinton, Iowa

In news published last month regarding new duties taken on for Ecusta Paper Corp., Pisgah Forest, N. C., by Raymond F. Bennett, since its acquisition by Olin Industries, his title was erroneously described as general manager. It is manufacturing superintendent, Ecusta Paper Corp.-Cellophane Dept. Burt Kassing, who resigned Feb. 1, was manager of manufacturing.

Mr. Bennett is making temporary headquarters at DuPont's Clinton, Iowa, plant, studying a cellophane process there, and planning his training and manufacturing program.

Mr. Bennett, former national president of the Superintendents Association, makes occasional trips to Pisgah Forest and to other DuPont plants. DuPont licensed Olin to enter the cellophane industry. The plant at Ecusta will purchase wood alpha cellulose pulp for raw material.



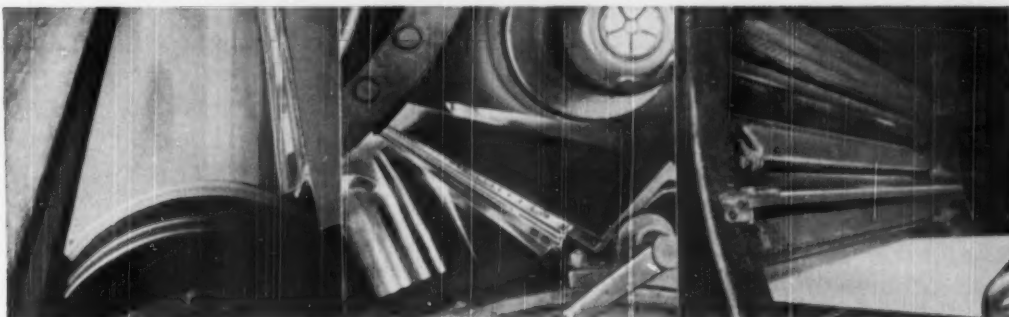
A Gleaming, Polished Roll **TWO MILLION INCHES LONG**

That's what a composite of Vickery Doctored rolls* would add up to—
and that gives you some idea of the importance good papermakers attach to

**VICKERY DOCTORS
ENGINEERED FOR EVERY ROLL**

*Press rolls, breast rolls, wire rolls, dryers, calender and super-calender rolls.

BIRD MACHINE COMPANY • SOUTH WALPOLE, MASS.



SUPERINTENDENTS' PROGRAM



The American Pulp and Paper Mill Superintendents Association goes back to familiar haunts at the commodious Edgewater Beach Hotel in Chicago again for its 1950 National Convention.

Golf or visits to the I. S. Berlin Press and the Newman-Rudolph Lithographing plants are scheduled on the afternoon of Wednesday, June 7. Convention sessions begin the morning of June 8, in the hotel, running through luncheon on June 10—Saturday.

The superintendents' prexy, Charles H. Reese (left), who is manufacturing veep of Nekoosa-Edwards Paper Co., presides at the opening a.m. general session and Herbert T. Randall, vice president and consulting engineer of Champion Paper & Fibre Co., presides at the last general session, the morning of the 10th.

Schedule of Group Meetings

June 8, 2 P. M.

Wood Room and Woods Operations—Mace V. Harris, Northwest Paper Co., chairman.

Coated Papers—E. T. A. Coughlin, consultant, Richland, Mich., chairman.

Power—Grover Keeth, Marathon Corp., chairman.

June 9, 9:30 A. M.

Fine Paper and Tissue—F. L. Zellers, Chillicothe Paper Co., chairman.

Sulfite—R. L. Davis, Detroit Sulfite Pulp & Paper Co., chairman.

Board—Glen Sutton, Sutherland Paper Co., chairman.

June 9, 2:30 P. M.

Kraft—G. K. Singletary, Brunswick Pulp & Paper Co., chairman.

Mill Maintenance—M. J. Auchter, Hoberg Paper Mills, chairman.

Graphic Arts—J. L. Kubicka, Container Corp. of America, chairman.

TACOMA PULP MILL IMPROVEMENTS

The St. Regis Paper Co., Tacoma, Wash., Division, is making extensive improvements and renovations in its kraft pulp mill, bringing it up to the standards established by its modern new paper mill, which went into operation Jan. 5, 1949.

In broad plans outlined by President Roy K. Ferguson of New York, and Walter DeLong, vice president and manager of the Tacoma division, as long ago as 1946-47, it was contemplated that when the paper mill job was done, the company would then

turn attention to modernization of its pulp mill.

Justin H. McCarthy (left), chief engineer, is directly in charge, as he was when the paper mill was built as well as the new wood preparation plant.

As a result, four of the six Tacoma digesters are to be replaced by A. O. Smith Corp., spot-welded stainless steel and Inconel lined digesters. Esco circulation will be adapted to them.

Swenson Evaporator Co. of Harvey, Ill., is supplying five more Swenson vertical evaporators in addition to the one already there, with fabrication by Puget Sound Sheet Metal Works of Seattle.

Improved Paper Machinery Co. is sup-

plying four new washers—an 8x12 ft. washer to go with two Oliver washers now in operation; and also an entire second bank of three Impco 8x16 washers. Impco pre-knotters are also being supplied. They will be sluiced with black liquor. A tank for knots will be built, and they will then go to digesters.

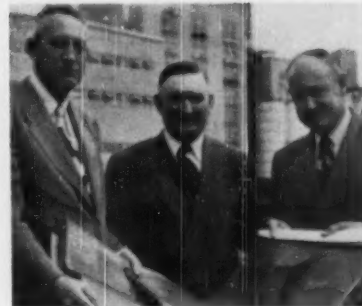
A large concrete chip storage silo will be added to the three built in 1948, thus giving the mill more versatility for segregation and control of flow of different type chips to the digesters. The mill is utilizing various species of wood and has recently begun the use of veneer refuse chips. Four plywood plants in Tacoma have installed the new Sumner Iron Works 6-knife veneer chippers, especially built for purpose of utilizing former plywood waste.

The St. Regis chip silo will have an Isaacson Iron Works (Seattle) suspended steel hopper with a revolving Link-Belt plate feeder of the new type installed in a number of large western pulp mills since the war.

A new innovation in digester construction are Inconel tops which A. O. Smith will install in all of the four digesters at St. Regis. One other Coast kraft mill is being supplied with an Inconel top by A. O. Smith. Shell cores of Inconel, the upper cylindrical sections, are also going into the four new digesters. Below, 18.8 stainless steel lining is used. According to A. O. Smith's special process, linings are all spot-welded on 1x1½ inch centers.



Stitt Heads Engineering; Cash Becomes Mill Manager



C. R. P. "DICK" CASH (left) has been appointed Manager of new San Joaquin Division, Fibreboard Products, Inc., at East Antioch, Calif. (new kraft and semi-chemical pulp and paper mill).

CLAUDE M. STITT (center), who was Manager during construction, is now Manager of the newly created Central Engineering Division, based at Antioch.

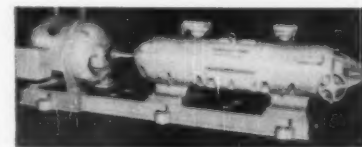
ROBERT E. BUNDY (right) Vice President in charge of production for Fibreboard Products Inc., came up from San Francisco to congratulate them.

T. N. Bland, president of Fibreboard Products, Inc., has announced creation of a new Central Engineering Division to be headquartered at Antioch, Calif., under the management of Claude M. Stitt, former Antioch mayor, and resident division manager of the new San Joaquin Division of the company at East Antioch, now being brought into commercial production.

Mr. Stitt was succeeded as resident manager of the San Joaquin Division by C. R. P. "Dick" Cash, who was general superintendent of the pulp and board mill there during construction and startup.

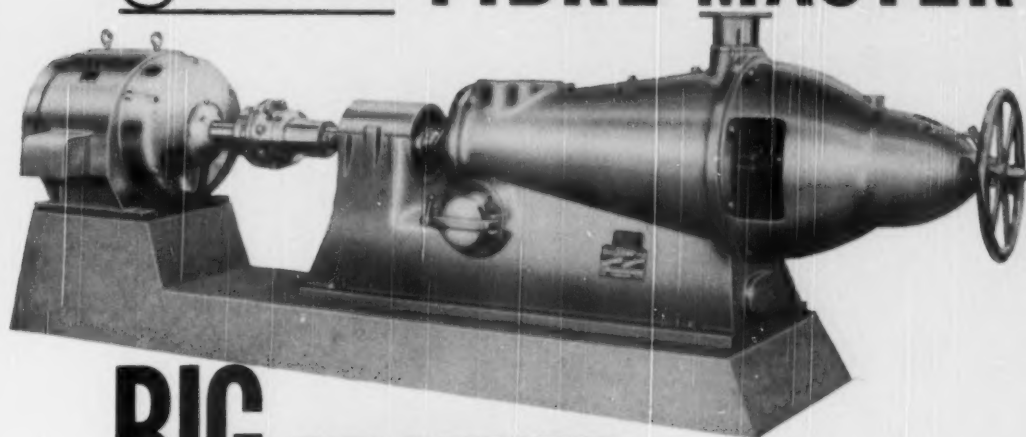
Mr. Stitt has been with Fibreboard since 1924, and before that with Paraffine Companies, Inc. Before the East Antioch assignment, he was manager of the nearby Antioch Division for a year and a half. He is a graduate engineer from the University of California. In Antioch he served 12 years as city councilman, during which time he was twice named mayor.

Mr. Cash received his technical training at Tri-State College, Indiana; moved west to the old Cascade Paper Co. in Tacoma, Wash., in 1925 as superintendent; later was with St. Regis Pulp & Paper Co.'s division at Tacoma, and with St. Helens Pulp & Paper Co., St. Helens, Ore. He was first chairman of the Pacific Coast Tappi Section. From 1935-1945 he was with Champion Fibre Co., Canton, N.C. as assistant superintendent of kraft and soda mills. Then he was superintendent of Brown Corp.'s La Tuque, Que., mill and later general superintendent of the parent Brown Company's new kraft operations at Berlin, N. H.



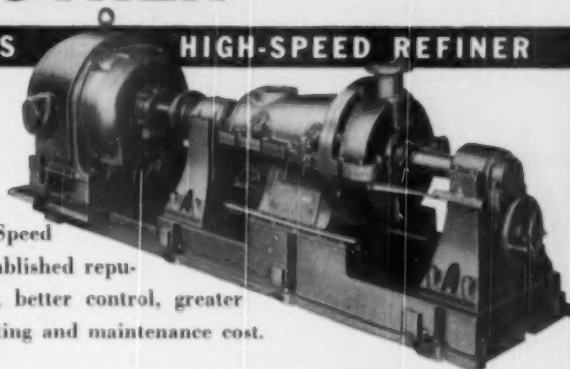
The new re-designed Downingtown Mfg. Co., Downingtown, Pa., Fibrefiner (shown above) is based on John Weiner patent rights purchased by Downingtown. It is used for refining groundwood, sulfite and kraft rejects, brushing out Mosanite and Asplund fiber, disintegrating partially pulped papers and dispersing clay and pigments. Power saving, low space requirement and easy maintenance are described as advantages.

E.D. Jones FIBRE-MASTER



BIG BROTHER

TO THE FAMOUS HIGH-SPEED REFINER



You know the Jones High-Speed Refiner. You know its established reputation for improved stock, better control, greater flexibility and lower operating and maintenance cost.

The FIBRE MASTER gives you all that — plus higher tonnage. The Fibre Master has twice the capacity of the High-Speed Refiner. It has a simplified, even more rugged design. Greater ease of maintenance because of easy disassembly (no need to disconnect piping to withdraw the plug, for instance). And it requires relatively little floor space.

If you have a problem in high volume refining, write for descriptive literature on the High-Speed Refiner and the Fibre Master.

E.D. Jones

**E. D. Jones & Sons Company, Pittsfield, Mass.
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY**

CROSSETT EXPANSION

TAKES PLACE WITH SOUTH'S LEADERS

Crossett Paper Mills, located in the well forested section of south Arkansas, is now operating its second Fourdrinier paper machine, thereby making a bid for a position among top leaders in the Southern paper field.

As long ago as 1899, the Crossett interests had the foresight to accumulate a substantial forest acreage in Arkansas. They established a big lumber mill at Crossett, founding the present community. It had been calculated on the basis of mill capacity that the timber stand would "cut-out," an accepted theory of that day. Twenty years later, the directors saw logs going into the mill that had been saplings at land acquisition. They cast aside the original conception of the enterprise, accepting instead an unlimited vision of a perpetual operation in which consumption would be geared to forest growth.

As the Southern paper industry thrived, providing a market for forest thinnings, the company resolved to use its own pulpwood and from that point began Crossett Paper Mills in 1937. Having experienced the shattering of the old forestry theory of cut out and move, the directors of The Crossett Companies enterprises had no inclination to readily accept limitations. So, Crossett Paper Mills from inception has laid a claim for leadership in modern papermaking down South.

World War II delayed its progressive program but in the intervening period from that time the mill has steadily advanced in adding facilities. These installations led up to expansion of boiler capacity, wood room equipment, water treatment, two new turbo-generators, digesters, etc.

These production foundations having been laid, Crossett started its 1948-51 pro-



K. O. ELDERKIN (left), Manager, and DAVID B. KUHE (right), Assistant Manager, of Crossett Paper Mills division of Crossett Industries at Crossett, Ark. Mr. Elderkin started his career in eastern Canada, developing high speed newsprint production, and has long been outstanding in high speed production in Southern kraft field. Mr. Kuhe, native New Yorker, was Manager at Atenciquito, Mex., Plymouth, N. C., and Panama City, Fla., in reverse order, and had many years in Southern kraft before he joined with Mr. Elderkin. With P. F. Watzek, General Manager of all Crossett operations, they led in planning and execution of paper mill expansion.

gram, with Rust Engineering Co., Pittsburgh Piping & Equipment Co. and Allegheny Industrial Electrical Co. All three of these Pittsburgh companies participated in the construction of the original mill.

For years, K. O. Elderkin, paper division manager, and his staff at Crossett have realized the need for a machine that would make high quality light weight (20 lb. to 35 lb.—24 x 36-500 basis) kraft papers at high speed and reasonable cost. They analyzed and planned ways of eliminating machine faults. They have now combined their ideas with those of the Beloit Iron Works engineers, to produce a machine which they believe to be a distinct advance in design. This machine gave a preview of its possibilities by making a run of 35 hours without a break on 25 and 30 lb. paper at a speed of 1200 feet per minute during its first week of operation in late January.

It was planned by Crossett to increase the paper production by 80 to 90% and by the close of 1950 to have its pulp capacity upped by 25%.

Description of Machine

The machine has a stainless steel lined pressure headbox designed by Crossett

engineers and built to specification by the Southern Boiler & Tank Works, Memphis, Tenn. The Fourdrinier is 216 inches wide, and its 43 ft. forming section is believed to be the longest ever designed. This length is to provide forming area sufficient for the high speeds contemplated, thus maintaining the high quality as well as maximum speed for which this mill is noted.

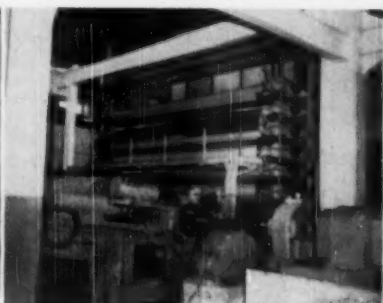
The machine is designed for the production of 140 tons daily of 20 to 40 lb. kraft papers at speeds indicated as high as 2000 feet per minute.

The wire pit is different and the press section also expresses Crossett's advanced ideas. Much attention has been attracted already to the cloverleaf design with its single 60-inch diameter rubber-covered top roll, the largest of its kind to date. The mill acquired two of these—one from Stowe & Woodward (now on the machine), the other from Manhattan Rubber Co. The roll covered by Stowe & Woodward, Inc., was ground on its new Farrel roll grinder and Crossett modernized their grinder to handle the other roll. The rolls themselves were made by Beloit, being covered by the rubber companies.

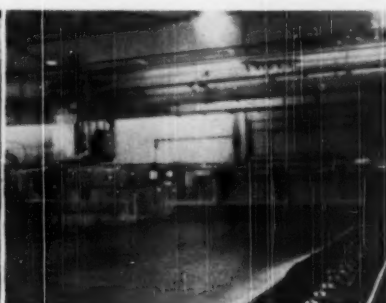
SIZE PRESS, BETWEEN DRYER SECTIONS. Modern hood and ventilation came from J. O. Ross Engineering, for this equipment.

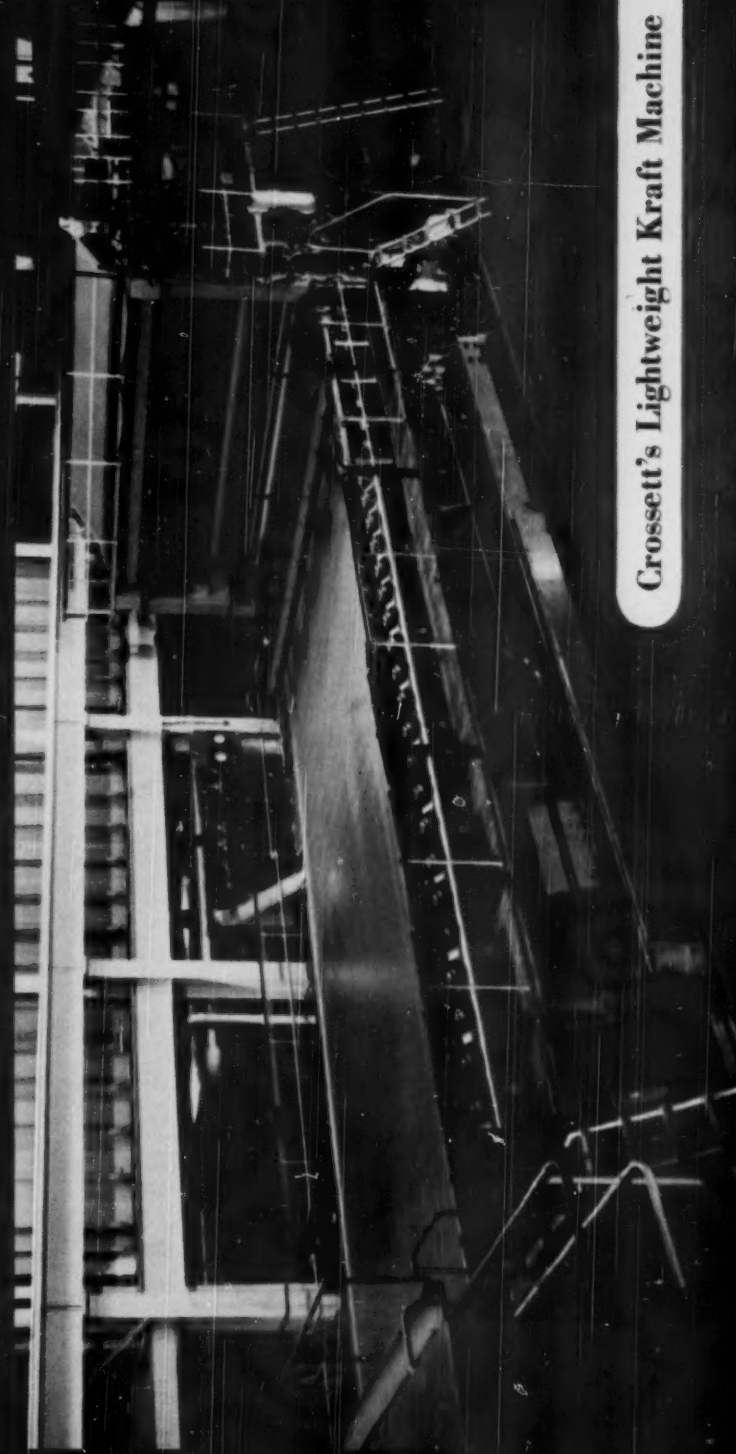


BELOIT CALENDER AND REEL. (Main drive for these is by General Electric motors through Lufkin Foundry reduction gears.) Reel speed carriage drive is by Reliance Electric & Engineering Co.



AT CROSSETT PAPER MILLS: Wet end of Beloit machine, taken from backside edge, showing Crossett-designed stainless steel pressure headbox (made to specification by Southern Boiler & Tank Works).





Crossett's Lightweight Kraft Machine

Congratulations to Crossett...

When Crossett Paper Mills, Crossett, Arkansas, started its new Beloit High Speed Kraft machine on January 17, 1950, a new era in lightweight paper manufacture began. Many features of machine and mill design have contributed to

this highly successful start-up, among them being the new automatic transfer arrangement which removes the sheet from the Fourdrinier wire and carries it through the press section. From the start, operating speeds have been maintained at levels definitely higher than had previously been possible.—*Beloit Iron Works, Beloit, Wisconsin.*



PERSONNEL AT CROSSETT PAPER MILLS (left to right): N. T. BEARDSLEY, Sales Manager; ROBERT W. BURNETT, Paper Mill Supt.; L. L. GIBBS, Power Supt.; A. B. MOORE, Asst. Paper Mill Supt.; C. WAYNE SMITH, Plant Engineer; R. W. WIZELL, Pulp Mill Supt.; and J. C. HAIR, Paper Mill Production Manager.



MEN ACTIVE AT CROSSETT include (l. to r.): J. M. PALMER, Purchasing Agent; A. W. DUSKIN, Technical Service Director; W. S. GARDINER, Asst. Pulp Mill Supt.; C. L. HOWARD, Asst. Power Plant Supt.; ROY ROY McGREGOR, Personnel Consultant; E. H. SMITH, Asst. Technical Service Director; and ROBERT C. SISK, Finishing Superintendent.

To grind these rolls Crossett modernized their grinder to accommodate the large diameter. There are two drying sections with a total of thirty-two 60-inch paper dryers and four 48-inch felt dryers. A size press is installed between the two drying sections.

The machine is driven by a General Electric multiple generator drive with electronic amplidyne controls. The drives operate through reduction gears furnished by Lufkin Foundry, Lufkin, Tex.

The cubicle control installations motor-generator sets, and starters for the motors for the machines are installed in a separate room extending 162 feet in length alongside the paper machine section.

This room is pressurized with a J. O. Ross Engineering Corp. ventilating system using outside air passed through automatic oil curtain filters. This air with heat gained from electrical losses is conducted to a Ross felt drying supply system distributing the air to the bottom dryer felts. This arrangement results in using the same filtered air twice and the utilization of electrical heat losses to reduce steam required for heating air supply to felts.

Within the electrical room are installed the Square D Co. cubicle controls. This company undertook to provide Crossett with these controls as a custom-built job.

CROSSETT EQUIPMENT. View of piping arrangement on A. O. Smith Corp. stainless steel-lined digester. Automatic blow valves by Yarnall-Waring; stainless steel exterior parts from Alley Mfg. Co., Pittsburgh.

NEAREST TANK is for heavy liquor storage. It has been coated with Erkate Mastic (Earl Paint Co.) for protection. Grayish hue comes from salt cake, from which mastic coat is to provide anti-corrosion protection.

but now has incorporated this equipment into their standard line.

At the dry end of the machine is installed a Beloit calender and reel. The main drive for these units is by General Electric through Lufkin Foundry gears. The reel spool transfer arm is driven by a Reliance motor through a Foote Bros. gear.

The transfer from reel to winder is effected with a Euclid Crane & Hoist Co. (Euclid, O.) 20-ton unit. The winder was furnished by Cameron Machine Co., being a Camachine Type 20, with a winder shaft stripper conveyor and elevator furnished by Beloit.

The machine is largely instrumented by Foxboro, with flowmeters from Republic. All Transite piping was supplied by Johns-Manville.

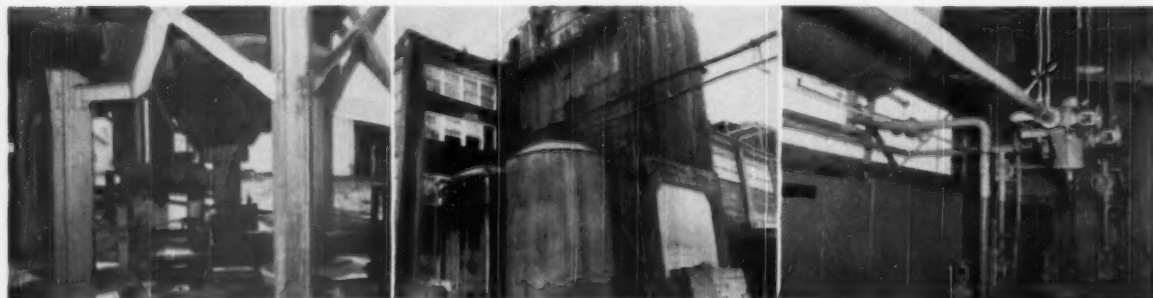
The machine hood and ventilating facilities and Ross-Grewin systems were provided by J. O. Ross Engineering Corp. There are two noticeable ventilating features. One is placing of man coolers supplied by cool air ducts, between the machines. The second is the placing of floor openings, with gratings, immediately alongside the machine dryers to permit upflow of air from below. These gratings spaced backside are also used to pass service piping. The hood exhaust volume can be controlled by means of motor-operated fan inlet vanes from a drying control panel near the calenders for added flexibility of operation.

The ventilating equipment is placed on a mezzanine (gallery) floor above the back side space for the machine. This mezzanine also accommodates other equipment, including a DeZurik stock consistency regulator and Improved Paper Machinery stock meter. The use of a mezzanine and the setting off of equipment in special rooms with ample back side space makes for easy access for the operators.

Aluminum Covers Pipes

A departure from the previous norm is the use of aluminum covers to replace canvas on the steam pipes. As explained by the mill, the initial cost and mainte-

SOMETHING NEW in paper machine lubrication; the oil room with DeLaval Separator Co. equipment. At upper left, a corner of 3500 gallon supply tank; below, two 2500 gallons each, service tanks.



Another Evaporator



FOR BLACK LIQUOR

Goslin-Birmingham is justly proud that its equipment is included in the expansion and modernization program of the Crossett Paper Mills, Crossett, Arkansas. This evaporator, designed by G-B engineers in conjunction with engineers from Crossett Paper Mills and Rust Engineering Company, Pittsburgh, Pennsylvania, offers many of the "specials" not normally found in black liquor installations.

These Include:

1. Twenty-seven-foot tubes in the heating elements for higher heat transfer rates.
2. Modern design with full stainless protection in the first effect for higher solids discharge and reduction of maintenance costs.
3. Heating of mill process water through a shell and tube partial condenser fabricated with stainless tubes and clad tube sheets in-

stalled in series with a barometric jet type condenser.

4. Removable tube sheets in all vapor effects for further reduction of maintenance costs.
5. Telescoping, removable clean-out skirt sections on the fourth and fifth effect heating elements to facilitate removal of accumulated scale. (Patents pending.)

This evaporator, while helping to provide the desired increase in mill production, will effect savings in steam and maintenance costs to quickly amortize the investment.

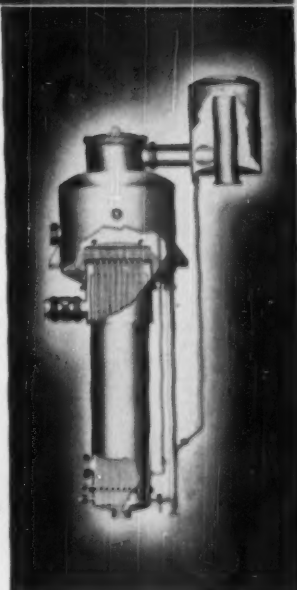
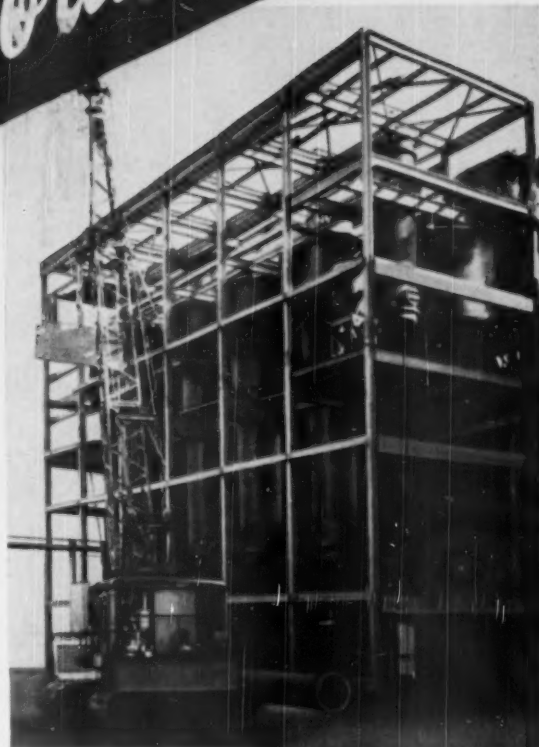
G-B engineers are available on request to discuss your modernization, expansion, operation, and maintenance problems. No cost or obligation.

GOSLIN-BIRMINGHAM MANUFACTURING COMPANY, Inc.

Birmingham, Alabama

NEW YORK: Goslin-Birmingham Manufacturing Company, Inc., 350 Madison Avenue

CHICAGO: F. M. deBeers and Associates, 20 North Wacker



nance of canvas covering is offset with a maintenance profit margin through the use of aluminum. The aluminum material costs more than canvas but takes so much less installation time that it proves to be economical in application and once in requires little maintenance.

The machine's lubricating system was furnished by the DeLaval Separator Co. Instead of being crowded near the base of the machine the system has an "oil room." Here there is a 3500 gallon capacity supply tank, two 2500 gallons each service tanks and the accessory equipment. Should a tank need to be cleaned, the oil can be pumped back up to the supply unit. Equipment to handle the oil includes Reliance motors and Minneapolis-Honeywell regulator.

Vacuum for the machine is provided by Nash Engineering Co. pumps, including four H-11 and two L-9 sizes. These pumps are mounted two to a shaft with a Westinghouse motor in the middle. The fan pump was furnished by Rayton-Dowd (Peerless); stock pumps are A-C; white and other water pumps were supplied by Warren Steam Pump Co.

Auxiliaries and Controls

General purpose motors came from Westinghouse and Reliance; switchgear from Square D, Westinghouse, and General Electric. The steam control is by Stamm; drainage by Midwest-Fulton. The weight regulator on the machine came from Impco. There is a DeZurik consistency regulator and Moore valve positioner backside. Some small piping around the machine is of copper, and stainless steel is used in key points on the wet end. The oil piping is of steel.

Crossett is the first Southwest mill to use instrumentation valve control for stock. DeZurik Z-way eccentric paper stock valves are used. Positioning mechanism is used with DeZurik cylinder operated valves for control of stock through the system.

On a raised platform alongside the headbox from which there is an uninterrupted view of the wire and machine operating aisle, there is a large control board from which the machine tender can start the entire wet end and change its speed, controlling from that point the start-up and regulation of the jordans, fan pump, stock pumps and other aux-

A MODERN TOWN BUILT IN VIRGIN FOREST, CROSSETT HAS MANY FEATURES FOR GOOD LIVING

Crossett's modern ideas for employe accommodations is exemplified in its service building, which though completed a year ago, remains as spotless as when new. The structure is of brick and steel, finished inside with glazed tile. Radiant heating is used throughout, and the time office, personnel office, conference room and plant guards' office are all air conditioned.

An unusual feature is the provision whereby the men's lockers are individually ventilated, the air entering through the bottom and leaving through the top. Piping is placed in hollow walls, allowing easy access. Locker and shower rooms for 700 employes are tops. The accommodations for negroes and whites, separate in accordance with local custom, are equal in quality and appointments.

Crossett Paper Mills is a division of Crossett Lumber Co., which also operates a 50 million feet per year lumber mill; the Crossett Chemical Co., which uses 100 cords per day of small otherwise unusable hardwoods; and the Crossett Research Laboratory, which serves its allied enterprises.

Since the Crossett community and sawmill was built in a virgin forest, it was necessary for the company to provide all housing and services. The expansion of the forest products industries and their establishment with the forest program on a permanent basis resulted in Crossett becoming an "open" town. Back in 1945 the company initiated a program of disposing of its 952 residences to their occupants on most favorable terms. Crossett has continued to expand, its population with contiguous area now being 6,000.

Located in Crossett is the Chase Bag Co. plant. Crossett is inviting other industries to come in and enjoy ideal low-cost sites; adequate supplies of natural gas, electrical power, excellent water and good native-born labor. Crossett is served by four railroads and two major highways. It has air service at El Dorado, Ark., only 45 miles away. By auto it is 130 miles from Little Rock, state capital, and 54 miles from Monroe, La.

Crossett's modern shopping center has been expanding. The community is completing an ultra-modern hospital-health center and a large high school. Rose Inn, familiar to salesmen, already has an annex expressing the ultimate in comfort. Two new churches have been completed.

iliaries. Foxboro control boards are spaced along the dryers and calender.

The five Shartle Bros. Miami No. 6 jordans, installed to provide stock for the machine, are equipped with Shartle automatic load controlled plugs, operated from the machine control panel. The piping at the jordans is of stainless steel. A Moore valve positioner is on the stock line.

The broke beater for the machine was moved over from the 65-year-old cylinder board machine, which is being retired. A check of this machine's dryer rolls revealed one carrying an 1882 date.

Pulp Mill Expansion

The current equipment in the Crossett pulp mill includes an installation of 12 diffusers, some of which may be displaced when the planned erection of a building addition to accommodate three large rotary washers and screen room will have been affected. At present the screen room includes seven rotary screens.

New stainless steel perforated strainer plates now being installed in the diffuser room came from E. F. Wolferz Alloy Equipment Co.

The original installation at Crossett

includes four digesters with chip bin overhead. A fifth digester was added later, this being serviced with chips by a short movable conveyor. In the current expansion (1948-51 program) three A. O. Smith Co. spot welded stainless steel lined digesters have been installed, continuing the straight line of these vessels. One of these digesters is equipped with Bristol automatic cooking control for use in experimental work. All eight digesters have remote control stainless steel Yarway blow valves. The relief valves are also of stainless steel.

The company plans the replacement of No. 5 digester, and the erection eventually of a separate chip bin structure on the ground with feeding of the digesters by conveyor. The digesters are of 8-ton capacity.

The earlier digesters were enclosed in the mill building. The four new installations are enclosed only on the upper level where operators are always present. The instrumentation of the digesters is various: Bailey, Bristol and Foxboro being represented.

The pulp mill capacity expansion is from 300 tons per day to 375 tons per day. The old bleach plant used in conjunction

PICTURED AT CROSSETT PAPER MILLS: Clock alley and entrance of service building.



CROSSETT IS GRACED with modern, attractive residential sections.

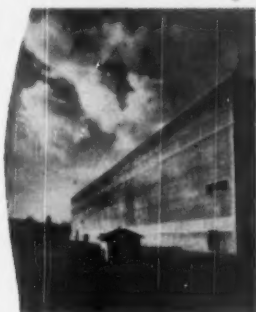
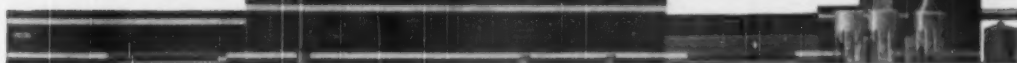


CROSSETT BUSINESS SECTION: There has been considerable expansion in business enterprises here.

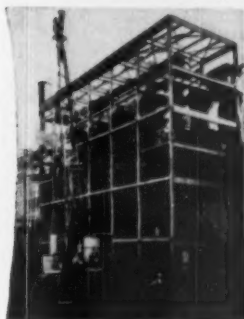


RUST "Know how"

AGAIN AT WORK TO HELP
MAKE THIS MODERN PAPER MILL
EVEN MORE EFFICIENT



Machine Room



Evaporator Room



Recovery Building

Crossett Paper Mills' original 200-ton Kraft pulp and paper making facilities were built at Crossett, Arkansas by RUST in 1936-'38. Rust has now designed and is completing additions that will practically double its output.

Current major additions include an air-conditioned Employees' Facilities Building, Machine Room, with control panel that enables one operator to see and control the entire machine, a Recovery Building, a modernized Evaporator Room and an enlarged causticizing plant. The entire mill is designed and constructed to give maximum operating efficiency with a minimum of maintenance and manpower.



Employees Facilities Building

COMPLETE PAPER MILL SERVICE

Rust service includes **ENGINEERING AND SURVEYS**: by-product process design; plant design; power, water and waste disposal surveys; wood yard facilities . . . **CONSTRUCTION**: new plants or modernization and additions to existing facilities including general construction, piping, and—through a subsidiary—electrical work . . . **SPECIALTIES**: refractory and acid-proof linings; chimney inspection, repair and erection; equipment and machinery erection; reinforced concrete storage bins; waterproofing of concrete structures. Whatever your problem consult Rust—for any job, large or small.

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PITTSBURGH 19, PA.

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Phone ATLantic 1-8870



Western Sales Offices:
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Offices in Other Principal
U. S. and Canadian Cities



RUST ENGINEERING CO., Pittsburgh, were designers and contractors for Crossett expansion. These Rust engineers were assigned there (l. to r.): M. C. Celli, J. W. Morgan, F. A. Black and C. H. Anderson.

with the board machine may be replaced eventually with a new, larger unit.

New Recovery Plant

A new 200-ton capacity recovery boiler is being furnished by Combustion Engineering and was installed in conjunction with D. J. Murray Corp. Cascade evaporator. An electric precipitator was supplied by Western Precipitator Co. of Los Angeles. The recovery boiler vents directly to the precipitator inside the building proper, there being no ducts to maintain. The engineering object here is to cut maintenance costs to a minimum.

The recovery system installation includes a five-body quintuple effect black liquor evaporator featuring two-pass liquor flow in the first effect body, a surface type partial condenser for process water heating, a telescoping, detachable shell section (patent pending) for easy access to tubes for cleaning and stainless protection in the first effect. The unit was designed and constructed by Goslin Birmingham Manufacturing Co., Inc., of Birmingham, Ala.

An interesting feature of the recovery is the installation of large aluminum louvers for the control of temperature within the structure. The recovery boiler is 98 feet high; the building, 115 feet high; and the stack, 150 feet. The boiler was erected by Rust Engineering, with some insulating material from Refractory Insulation Corp. of New York.

The interior walls of the recovery building are of glazed tile of coloring according to chart. This not only presents a difficult

surface for dust adherence but is easily washed down. Paint elimination is expected to reduce maintenance costs. The elevator serving this building was furnished by Otis.

Uses of Erkote Mastic

Protection against corrosion is being effected through the application of Erkote Mastic, a product of Earl Paint Co.

In application of Erkote 2X corrosion resisting mastic, the 100,000 gallon elevated Sprinkler Tank was first thoroughly cleaned and given a passivation treatment with Erkote metal conditioner and then mastic was sprayed on at the rate of seven gallons per 100 sq. ft.

Other 2X corrosion resisting mastic installations are on a high feed water storage tank, a large water storage tank, and top of dump-tank.

Erkote 3X insulating mastic is on a 21 ft. high black liquor storage tank, a green liquor dissolving tank and tank vent and precipitator stack.

An installation of 3X insulating mastic is in the original section of the pulp mill on all eight large diffusers used for washing the pulp, thus maintaining uniform temperature of the liquor and water during operations, reducing the heat transfer and providing pleasant working conditions.

Machine Building Construction

The new machine building is designed to minimize painting maintenance and for temperature control. Glass blocks are used extensively. The triple glass block

installation deflects the light upward and then down, eliminating glare. The new machine building has but two actual window openings.

The machine room roof is of the "sweatless" type, similar to that provided for the first machine at the initial erection of the mill. The material from which it is built is Wolmanized lumber furnished to the paper mill by the saw mill division of Crossett Lumber Co. The condensation of moisture against the roof underside is obviated by the circulations of warm air. The original roof over the first machine is in excellent condition after 14 years of service.

The floor of the mill is to be dry. Drains are placed at a substantial depth (ranging around three feet) and the floor has a minimum slope of $\frac{3}{8}$ inch per foot.

The interior of the mill, wherever practicable, is painted in accordance with the "color dynamics" recommendations of Pittsburgh Paint Co. and the E. I. duPont Company.

Hardy S. Ferguson Retires

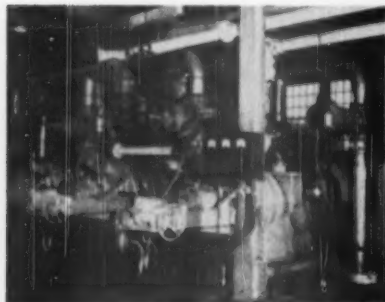
Hardy S. Ferguson, one of the best known and most venerable figures in the pulp and paper industry and one of its very foremost engineers, in April decided to retire. The big rooms at 200 Fifth Ave., New York, are already vacated. Mr. Ferguson's achievements were crowned by award of the Tappi Medal in 1949 (for interview on his work around the world, see Feb. 1949 PULP & PAPER).

He is returning to his beloved Maine for retirement and will reside near Portland.

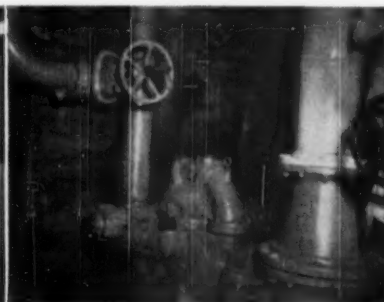
Paper From Rice Straw

Fabrica de Papel "N. S. Aparecida" S. A. of Sao Paulo, Brazil, has ordered a "Celdecor" continuous unit for the production of 30 tons per day of corrugating paper and liner board from rice straw. Celdecor Africa (Pty.) Limited, Benoni, Union of South Africa, are consulting engineers for the plant which will be supplied partly from Britain and South Africa.

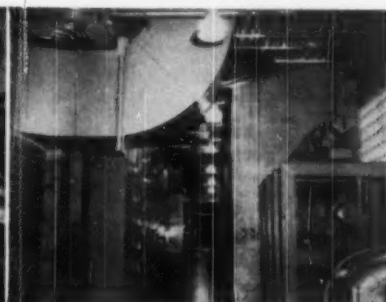
EQUIPMENT AT CROSSETT. View of one of the five Shartle Bros. Miami No. 6 jordsams added for new machine. Shartle automatic plug control is from big machine board at wet end. Piping is stainless and diaphragm valves from Saunders.



ONE OF THE WARREN steam pumps used for stock movement. Valve shown here is a Walworth.

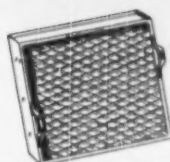


ELECTRICAL SWITCHGEAR and start-up motors for paper machine and auxiliaries in special 162-ft. air-conditioned room. At left one section of Square D cubicle switchgear. Farther back (left) Electric Controller Co. voltmeter AC motor starter gear.



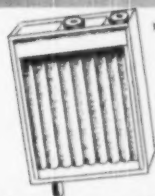
a lot that's new has been added...

CHECK THESE
7 NEW FEATURES
OF THE *Improved*
ROSS-GREWIN
System



1

All air is now filtered



2

Heater casings and piping are thoroughly air tight



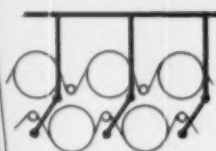
3

Higher air temperature is achieved



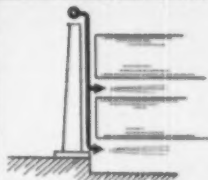
4

Orifices are graduated and easily interchangeable



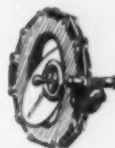
5

Air is also supplied to the Dryer Felt Packets



6

Front drop pipes are inside frames, where possible, for safety of operators



7

Hand-wheel operated damper on compressor allows quick, accurate adjustment of air pressure to suit grade of paper

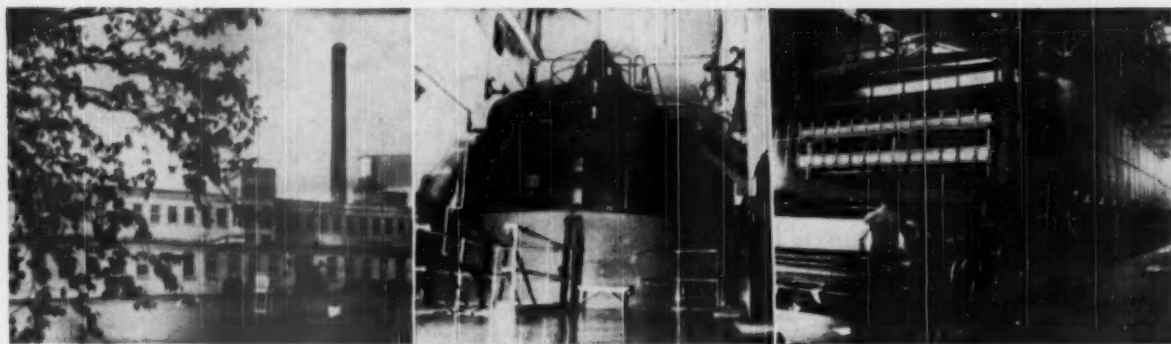
We have further improved the effectiveness of this system by providing more uniform drying and increased capacity and we have greatly improved upon the construction so that this effectiveness can be maintained indefinitely. Consult us about re-vamping your existing system or planning your new ROSS Grewin System. J. O. ROSS ENGINEERING CORPORATION, 350 Madison Ave., N. Y.—Chicago, Boston, Los Angeles, Detroit, Montreal, Canada.

Be Sure Your System Is
Designed • Built • Installed By

ROSS
ENGINEERING

NEWFOUNDLAND MILL

Improvements Made at Grand Falls



AT GRAND FALLS. Left—General office building of Grand Falls mill, Anglo-Newfoundland Development Co. Center, 32,000 h.p. generator. Right—Dry end and general view, No. 7, a Walmisley machine.

A program designed to increase production and improve operating efficiency has been of prime concern at the Grand Falls mill of Anglo-Newfoundland Development Co., farthest east of all the paper mills of North America.

Just 12 miles farther east in the great water interior of Newfoundland is the Bishop Falls mill which provides about one-third of the groundwood for Grand Falls—pumped there in a 20-in. pipe.

So far, production of newsprint has been increased at Grand Falls from 575 to about 750 tons a day. Grand Falls makes most of its groundwood and all of its sulfite requirements.

Of more than 1,000 plane flights per month that use the nearby Gander Airport, many pass over these mills and it was from one of these planes that a PULP & PAPER editor had his first view of the mills.

Improvements are being made in all departments at Grand Falls, plus woods operations and shipping facilities at the port of Botwood, at the head of a long neck of water on the north coast.

PULP & PAPER herewith presents the first detailed outline of this program.

Four lines of electrically driven grinders are installed. Each line consists of two Waterous Great Northern grinders driven by a 3500-hp., 250-rpm. Westinghouse motor. A new water pumping plant, supplied by Waterous, is included. It was intended that eight additional similar grinders would be installed to replace present pocket grinders, after which all wood used at Grand Falls was to be in 4-foot lengths, instead of the 32-inch lengths used in the past.

Necessary changes to stock pumping and screening facilities were made and four additional 8' x 14' Oliver United stock thickeners added. Five Haugh refiners, supplied by Canadian Ingersoll Rand Co., were ordered for the processing of groundwood tailings.

No major changes are being made in the sulfite department. However, a new sulfur melter, supplied by Foster Wheeler Ltd., was being installed and improved methods of handling sulfur and limestone. In addition, the screening system was re-arranged to improve quality of both news and export sulfite.

Three blowpits are soon to be replaced, also the piping and vent stacks connected with them. The blowpits will be fitted with perforated chrome nickel steel drainage plates and connected to the digesters with chrome nickel steel blow-off piping.

This year a Jeffrey type "B" shredder with 200 hp. motor will be added for the disintegration of sulfite knots. This machine after further refining in the wrapper stock preparing system will be used in making mill wrapper, sheathing paper and laminated board.

The work of converting steam plant from coal to oil burning is now almost completed. One Kidwell boiler is operating on oil with full automatic control, another on oil with hand control, and the remaining unit is now being fitted with oil burners supplied by Foster-Wheeler. Automatic combustion control equipment for the three units was supplied by Republic and Dominion Flow Meters Companies, and is being installed under the supervision of their representatives.

The capacity of the sulfite drying ma-

chine is increased by the addition of four Lukenweld steel dryers to a daily capacity of 80 tons export sulfite. This machine will be operated part time for making mill wrapper and sheathing paper. For this purpose a new stock preparing system was being installed, consisting of a 10-foot Shartle-Dilts Hydrapulper, thickener, Jordan, Hydratiner and consistency regulator, with necessary chests, agitators, etc. This equipment is being supplied by Alexander Fleck, Ltd., Ottawa, affiliated with Black-Clawson, Shartle and Dilts. Lithocoted piping is being used, supplied by the R. F. Walsh Co., Montreal.

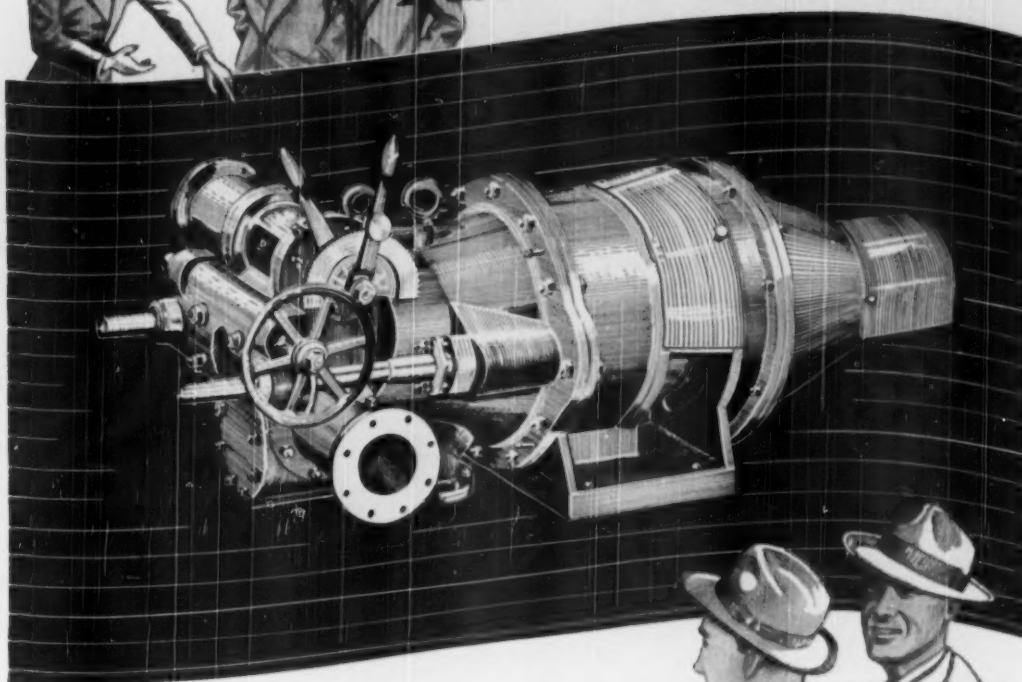
Various improvements in the company's seven paper machines follow: two having wire widths of 124 and 138 inches are being left in more or less their present condition and with their existing mechanical drives, with the idea of adapting them to run rotogravure and other specialty papers. For the latter machine a variable speed direct current motor and motor generator set is being supplied by the Montreal Armature Works.

Three other machines, two having wire width of 156 inches and one 165 inches, were being rebuilt. For each machine six new dryers, two felt dryers, new reels and the necessary frames were ordered from Bagley & Sewall of Watertown, N. Y. Harland sectional electric drives for the three machines were being supplied by Bepco of Canada, and new winders fitted with hydraulic lowering platforms by the Cameron Machine Co.

The 165-inch machine is operating at a speed of 1050 ft. per minute and will probably attain a speed of 1100 to 1200 ft. per minute.



It's Just Common Sense!

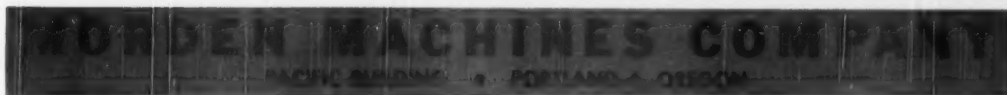


The way

the Morden "Stock-Maker" combines beating or refining into one simple and continuous operation.

More than 350 "Stock-Makers" in over 100 mills have proven its superiority for the vast majority of stock treatment requirements.

May we assist you in surveying
"Stock-Maker's" advantages
for your particular requirements?



in Canada

The William Kennedy & Sons, Ltd., Owen Sound, Ontario

in England

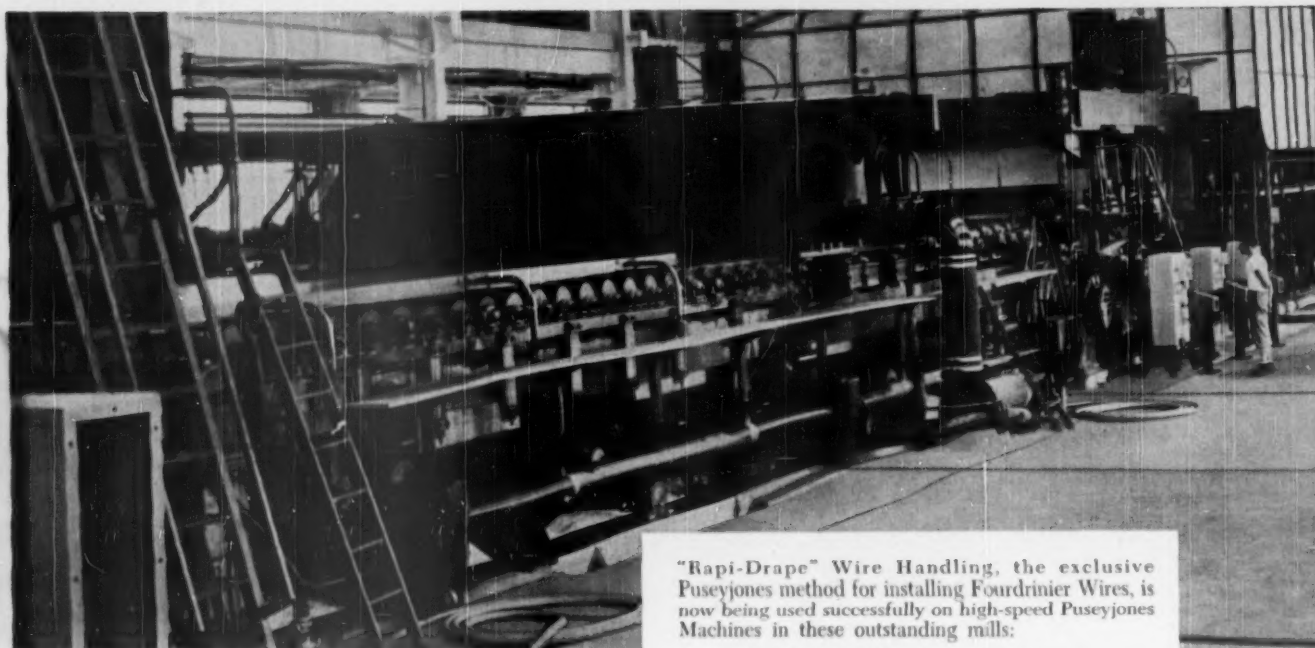
Millspongh, Limited, Sheffield

Eastern Sales Representative: Union Machine Company, Fitchburg, Massachusetts

May 1950

41

Success Story ON "RAPI-DRAPE" WIRE HANDLING



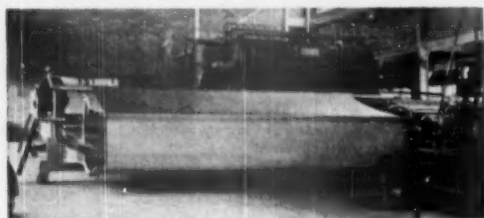
"Rapi-Drape" Pusey Jones Fourdrinier Part suitable for a wire 236" wide, 120 ft. long.



Wire holder handled by crane.



Under-carriage in position ready to drape wire.



Wire draped on under-carriage ready to install.

"Rapi-Drape" Wire Handling, the exclusive Pusey Jones method for installing Fourdrinier Wires, is now being used successfully on high-speed Pusey Jones Machines in these outstanding mills:

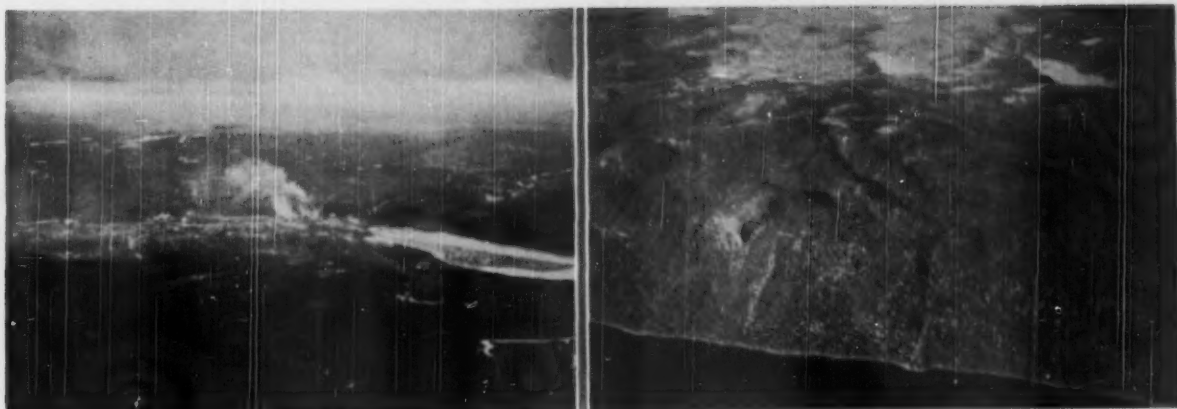
Southland Paper Mills, Inc., Lufkin, Texas
Hollingsworth & Whitney Company, Mobile, Ala.
Southern Advance Bag & Paper Co., Hodge, La.
St. Mary's Kraft Corp., St. Mary's, Ga.
Union Bag & Paper Corp., Savannah, Ga.
Hudson Pulp & Paper Co., Palatka, Florida
Southern Paper Board Corp., Port Wentworth, Ga.
Fibreboard Products, Inc., East Antioch, Cal.
St. Regis Paper Co., Tacoma, Wash.
Calcasieu Paper Co., Elizabeth, La.
San Rafael Paper Co., Mexico, D. F.
Papierfabrik Utzenstorf, Switzerland
National Newsprint Co., Ltd., India

The results in terms of fast, safe wire handling are acclaimed by the responsible operators and engineers. There are no heavy parts to handle. The Fourdrinier part remains in perfect alignment at all times, adequately supported at front and back. No danger of deflection stresses and distortion as experienced with complete removal or cantilever change.

Be sure that your next machine is equipped with "Rapi-Drape" Wire Handling—one of many design improvements and labor saving devices pioneered by Pusey Jones.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
Wilmington, Delaware, U.S.A.





NEWFOUNDLAND AIR VIEWS: Left—View from air of the Anglo-Newfoundland Development Co., at Grand Falls, taken from small, two-motor plane with an Argus camera, on 35 mm. film by PULP & PAPER editor on tour. Right—View showing large section of the east coast island, dotted with thousands of lakes. There is actually more water than land in Newfoundland.

Alexander Fleck, Ltd. (Black-Clawson, Shartle and Dilts) supplies 12-ft. broke hydropulpers for each machine. It is expected that these machines will operate at paper speeds of 1100 to 1300 f.p.m.

The remaining two machines, built originally by Charles Walmsley & Co., England, have a wire width of 226 inches and one of these has already had wire length increased to 87 feet. A new rubber-covered suction first press roll is now on order with Dominion Engineering Co. and certain other changes to head box, slice, pumps, etc., are to be made with the object of increasing operating speed to between 1300 and 1400 f.p.m.

The other machine will have wire length similarly lengthened and a new 44-inch diameter double box suction couch roll, new table rolls, frames and baffles have been supplied by Dominion Engineering Co., and are ready for installation. For each new couch roll three H-12 vacuum pumps supplied by Nash Engineering Co. will be used. When this equipment has been installed it is ex-

pected that operating speed will be increased from a present maximum of 1300 f.p.m. to 1500 f.p.m.

A new Flowrator stock proportioning system has been supplied by the Fischer Porter Co. to furnish mixed stock for the two 226-inch machines. This equipment is in operation. In addition, improved agitation was going in for groundwood, sulfite and mixed stock chests, as well as necessary alterations on stock pumps and piping. An 8 x 16-foot stock thickener, supplied by Oliver-United Filters, has been added for use on news sulfite.

The ventilating system of the three machine rooms will be further improved by replacing one of the heat recovery towers with a new one supplied by Foster-Wheeler. The exhaust capacity will also be increased. The Briner economizers on one of the two 226-inch news machines will be brought up to present requirements by adding one new unit and replacing the three existing units.

Plans for improving and rearranging the finishing room and local sales equip-

ment at Grand Falls are now being made. It is intended that finishing, wrapping and shipping of sheet news, sheathing paper, etc., will be located in one area where handling costs may be reduced by the use of electric hoists and trucks.

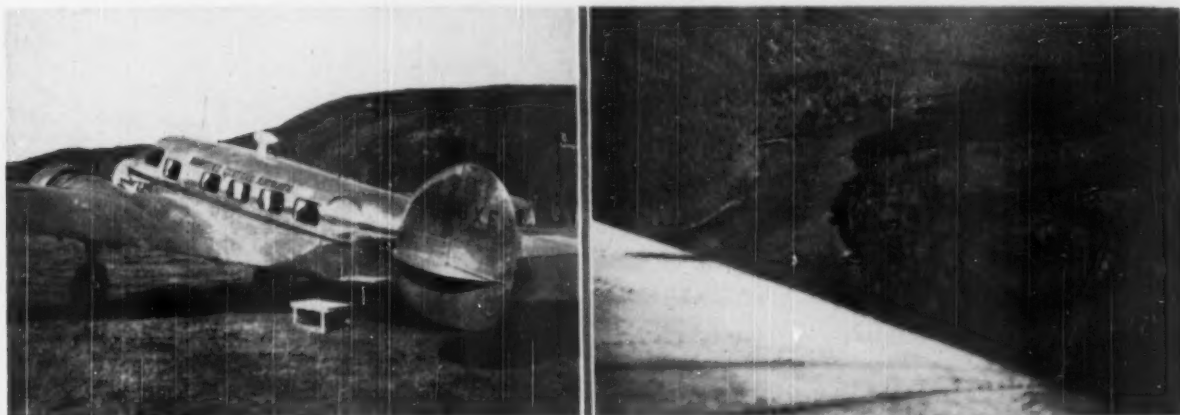
Likewise in the finishing of roll newsprint, a revised layout of rewinders, conveyers and other equipment should result in sufficient increased capacity to take care of higher paper machine production and at the same time reduce finishing costs.

The shipping port at Botwood is connected by the company's railroad with Grand Falls, a distance of 25 miles. As the port is closed in by ice from January until June, a part of the paper produced is shipped via Newfoundland Railway to St. John's. The remainder of the winter production is stored at Grand Falls and capacity of storage shed has been recently increased to 40,000 tons.

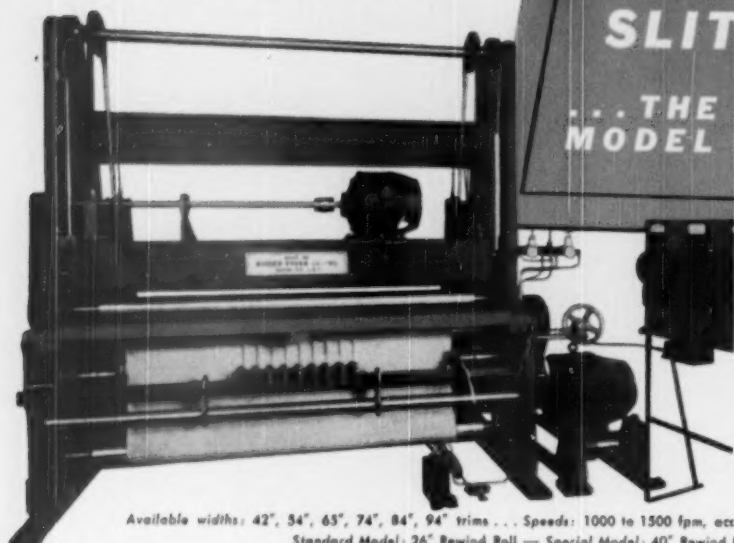
Before the start of the wood preparing season in 1951, it is expected that the

(Continued on Page 46)

LEFT is chartered, two-motor plane, in which PULP & PAPER editor flew over mills during inspection of the industry in Newfoundland. **RIGHT**—Shows type of small timber on the island. Trees there are generally smaller than in other areas.



Kidder Announces



A NEW
GEARLESS
SLITTER

... THE
MODEL **G.T.**

**Rugged Enough
To Slit 200 lb.
Tag Stock...
Accurate Enough
To Handle The
Lightest Tissue**

Available widths: 42", 54", 65", 74", 84", 94" trims... Speeds: 1000 to 1500 fpm, according to type of work...
Standard Model: 26" Rewind Roll — Special Model: 40" Rewind Roll

G. T. Features For Easier, Lower-Cost Slitting

Gears Eliminated, resulting in greatly reduced upkeep and almost complete silence. V-belts replaceable without dismantling. Rotating members, except mill roll shaft, mounted on sealed anti-friction bearings.

Motor Drive sold as package, including M. G. set. Main motor and mill roll brake on right of machine. Kidder engineers will recommend motors of correct capacity.

Shear-Action Cutting severs web. Shaft-mounted, two-edged back cutters, $\frac{3}{8}$ " wide, are driven slightly faster than the web. Ball-bearing front cutters, rotating by pressure against back cutters, are kept sharp by latter's harder metal.

Slit Webs Are Wound either on core or on a collapsible shaft, in cradle formed by two drums, under pressure

from a third above. The two drums are driven by main motor; top roll is driven by a rheostat-controlled auxiliary motor.

Hardness Controlled by varying pressure and speed of top roll assembly, which is heavy enough to wind the hardest roll. Pneumatic cylinder provides counterbalance ranging from zero to complete lift.

Web Tension is provided by water-cooled, rotating-disc brake. Actual tension control is through pneumatic diaphragm exerting smooth, flexible pressure on the two stationary plates.

Bow Bar helps smooth out wrinkles and handle baggy stock. Bar, adjustable as to angle, can press on web's center or edges, combining with the mill roll's bias adjustment to keep web straight and taut.

Send for complete information on the quieter, smoother-working, cost-reducing Model G. T. Slitter



- give you
1. Clean, Accurate Cutting
 2. High Speed, Dustless Operation
 3. Easy Separation of Rolls

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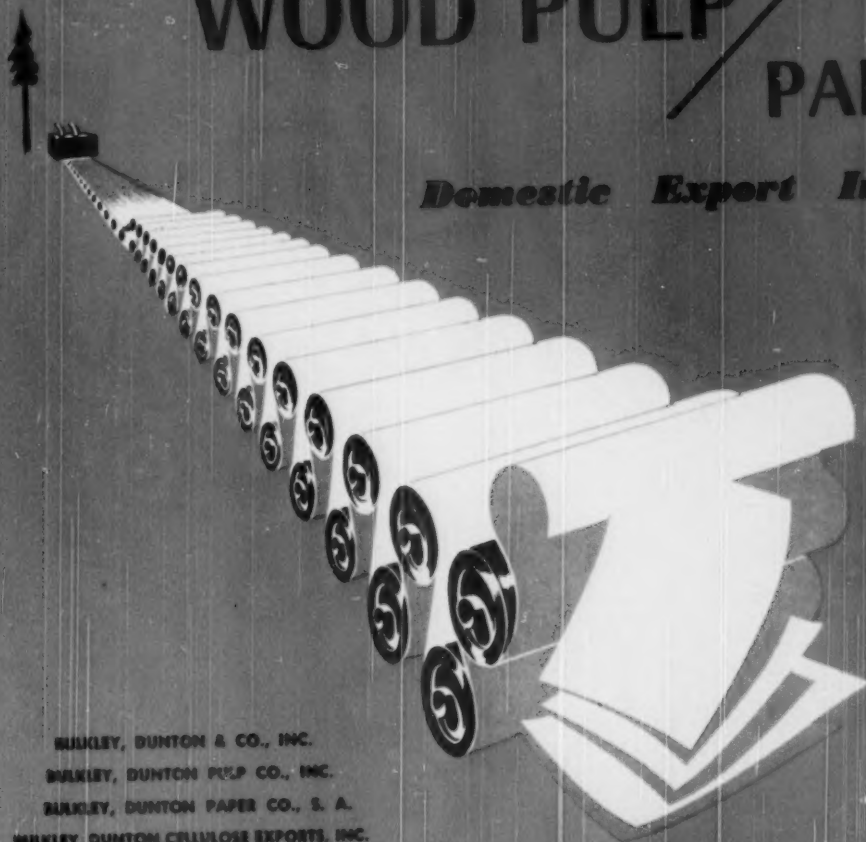
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WOOD PULP / PAPER

Domestic Export Import



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BULKLEY-DUNTON
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295 MADISON AVENUE, NEW YORK 17, N. Y.



(Continued from Page 43)

present slasher mill will be replaced by a new haul-up having a capacity of 3000 cords of 4-ft. wood per day. The final wood preparing layout to be completed over the next two or three years will include three existing and three new 12-ft. by 45-ft. barking drums located near the haul-up, also one stationary and three movable stackers. Log piles will be located in comparatively small units, with adequate fire protection facilities. Transportation of wood to and from storage areas will be almost entirely by water flumes.

Plans are being made to improve the wood room layout by relocating conveyors, chippers and other equipment. Two adjacent 12-ft. by 45-ft. barking drums will be used in winter only to prepare wood for the sulfite department; also to bark a small amount of rail wood.

In addition, a new 10,000-ton storage and shipping warehouse has been provided at Botwood, with cranes and conveyors for moving paper direct to ship's side.

Structural steel work for these additions was supplied by the Belmont Iron Works; cranes by Dominion Bridge Co. and conveyor installations by Williams & Wilson, Ltd., of Montreal.

The original Anglo-Newfoundland Development Co. was formed in 1905, and the present company was incorporated in 1933. President of the company is Elliott M. Little, who is also head of Anglo-Canadian Pulp & Paper Mills, with large-scale operations in Quebec. Vice-president and general manager is Philip Gruchy, C. B. E. Mill manager is T. R. Moore.

The company's pulpwood stands extend over an area of 7,400 square miles in Newfoundland, the 40,000-square-mile island which is Canada's new province.

Bowaters' Newfoundland Pulp and Paper Mills, also with vast woodlands over much of Newfoundland, and Anglo-Canadian are the two greatest industrial enterprises of the island along with aviation

One of Two T. R. Moores Who Are Paper Mill Managers



T. R. Moore, mill manager for Anglo-Newfoundland Development Co., Ltd., at Grand Falls, Newf., less than a couple years, was previously general superintendent of the Gaspesia Sulfite Co. at Chandler, Que.

A native of St. John, New Brunswick, he attended the University of New Brunswick and graduated from there in 1933. He was assistant chemist for Port Royal Pulp &

Paper Co. at St. John in 1934 and in 1937 was made control superintendent of Gaspesia Sulfite Co. In 1940 he became assistant superintendent there, and two years later was appointed chief research chemist for Northeastern Paper Products, Ltd., in Quebec.

In 1945 he joined Anglo-Canadian Pulp & Paper Mills, Ltd., Quebec, as control superintendent, and in 1946 returned to Chandler as general superintendent of the Gaspesia organization, moving to his present position in Newfoundland in 1948.

He is the second T. R. Moore to be a mill manager in this industry. But he is no relation to T. R. Moore, the vice president and general manager of Brown Paper Mills, West Monroe, Louisiana.

business. There are only a comparative few miles of motor roads near the main towns, and no roads across the island or connecting major points. A winding narrow-gauge railway threads its way to connect with all towns in a rambling east-west line. The population is 350,000, mostly fisher folk, but many in the mills and woods, airways and railway services. About 50,000 itinerants of almost every nationality drop down at Gander every month and that big airport, its restaurant, overnight dormitories and drink club or two on its outskirts is about all they ever see of Newfoundland.

John B. Chandler Heads Buffalo Pulp-Paper Division

Buffalo Pumps, Inc., and its parent organization, Buffalo Forge Co., Buffalo 5, N. Y., announces formation of a new Pulp and Paper Division, which will be headed by John B. Chandler (right), one of the most widely traveled equipment representatives in this industry, who formerly worked in New England and Southern mills.



In a letter to PULP & PAPER, A. G. Peterson, vice president of Buffalo Pumps, said the new division will serve increasing needs of the pulp and paper industry by integrating engineering and application problems of liquid and air handling. Stock, process and general service pumps, fans and air conditioning equipment and other equipment will be handled through the division.

Mr. Chandler will continue to visit mills in every region from coast to coast, as he has done for the past six years for The Bristol Company, while head of their Pulp and Paper Division.

Mr. Chandler is 35, was born in Boston and graduated in chemical engineering from Bowdoin College, Brunswick, Me. He went to work for Brown Company in Berlin, N. H.; then Hollingsworth & Whitney Co. with mills in Maine and Alabama; then Pollock Paper Co. in Dallas, Tex. He served Bell Aircraft during the war at Marietta, Ga., where they were making B29's. He maintained his home in Georgia during the past six years while traveling for Bristol, but now is moving to Buffalo.

He married the former Juliette Blackburn, who was born in Berlin, N. H. They have one son, John, Jr., 10 years old.

HOOKER'S EXPANSION IN TACOMA

E. R. Bartlett, president of the Hooker Electrochemical Co., Niagara Falls, N.Y., announces the company will increase production facilities for caustic soda and liquid chlorine at its Tacoma, Wash., plant. The expansion will be completed by October.

Existing buildings will largely house new equipment although several buildings will be added. Two circuits of old Type E electrolytic cells will be removed and replaced by the newest Type S-3 cells which have far greater capacity for producing caustic soda and chlorine. The Type S-3 cells are a recent development of Hooker research. Up-to-date equipment for handling and treating brine, purifying caustic and liquifying chlorine also will be added. Triple effect pans will be used for caustic evaporation and a new boiler will supply additional steam. Provision is to be made for additional recti-

fier capacity for converting alternating current to direct current required for the cells. Other facilities will include a new cell construction and renewal building, additional storage tanks, water supply, expanded dock facilities.

The expansion is required for additional business, reflected in part by new pulp mills of Columbia Cellulose Co. and Nainimo Sulphate Pulp, Ltd., in British Columbia. Hooker has been serving Pacific Coast industries areas since the start up of its Tacoma plant and its caustic soda distributing station at Los Angeles in 1929. Products from Tacoma other than caustic soda and liquid chlorine are muriatic acid and hydrogenated fats and oils.

The Hooker Co.'s expansion of eastern and western facilities in the past four years have amounted to over \$12 million, mostly in the Niagara Falls plant.

Schweitzer Forms New Dept.

Peter J. Schweitzer, Inc., has formed a new department to encourage use of its paper laboratories by its customers and potential customers in tobacco, radio, automotive and other industries. M. Peter Schweitzer, secretary-treasurer, Chrysler Building, New York, heads the new department. Since Schweitzer acquired the five Smith cigaret and condensing paper mills at Lee, Mass., in addition to four Schweitzer plants, the lab facilities are enlarged.

Combined facilities now make paper for Lucky Strike, Pall Mall, Herbert Tareyton, Philip Morris, Life, Regent, Raleigh, Kool, Viceroy, Wings, Players, etc., condenser papers for GE, Westinghouse, General Motors, etc.



LODDING



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Woolworth Building, New York.

PAPER SCHOOL'S GRADUATION



AT CAMAS GRADUATION: Top Corner—West Linn Mgr. Peter T. Sinclair (left) and Veep Frank Youngman. Lower corner—Camas Mgr. Frank Drumb (left) and Mills Consultant Clarence Bruner. Others, l. to r.—Frank Belgrano, Jr., Portland Bank President; Jack Henny, Mfg. Veep, and (speaking) A. O. Norwick, Asst. Mgr. at Camas and Dean of School.

Crown Willamette Paper School at Camas, Wash., held its 17th annual graduation exercises March 9 for 206 students.

This unique industrial institution for Crown Zellerbach Corp. employees—a school where no tuition is charged, graduates are not faced with job-hunting, and its fraternities include the unions to which many of its members belong—has presented to date 2,366 diplomas to em-

ploye students. Of the total, 248 diplomas were for completion of the entire four-year course while carrying on full duties of regular company work.

This year's graduates, largest since 1942, include students from Camas and West Linn, Ore., mills, the logging division at Molalla, Ore., Western Waxed Paper Co., and C-Z Portland, Ore., offices.

Of the 1949-50 diplomas, 24 were for completing four years, 34 for the third year, 43 for the second year, and 105 for the first year course.

The school has a board of regents, 13 pulp and paper industry experts on the faculty board, also faculty advisors and guest lecturers from allied specialty fields. The school's text book was written by

CROWN WILLAMETTE PAPER SCHOOL, 1950, Fourth Year Class (L. to R.): FRONT ROW—Frank L. DeTemple, Thomas W. Hart, Sidney E. Pierce, Matthew A. Haslett, Leslie J. Champion, Howard Z. Rondeau, William Ashe. SECOND ROW—William H. Kraft, Curtis Asher, Don C.

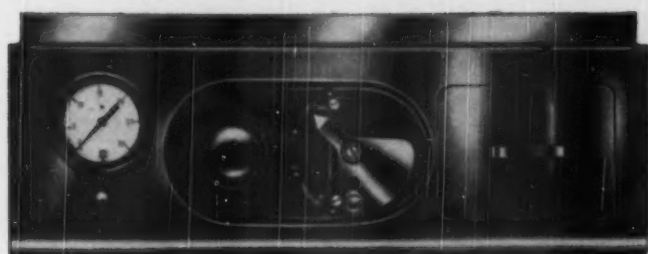
Eldredge, Tom Scarfone, Alton L. Morris, Harold A. Daniels. THIRD ROW—Harold A. Sandstrom, Carl E. Rhorer, Jerry J. Goggins, Fred L. Curtis, Tom W. Leedham, Dean E. Lindgren, Leonard R. Greger, John A. Grill, Conrad Morasch, Kenneth F. Byington, Thomas F. Drennan.



CROWN WILLAMETTE PAPER SCHOOL, 1950, Third Year Class (L. to R.) FRONT ROW—Robert Russell, Philip E. Langland, Alfred Calhoun, Wallace L. Kohl, William G. Daggett, Ellis B. Newkirk, Melvin Q. Tucker. SECOND ROW—H. C. Hall, Millard V. Stout, John M. Sykes, Sam Runyan, Franklin A. Ackerman, Robert H. Olds, George A. Charters, Gordon

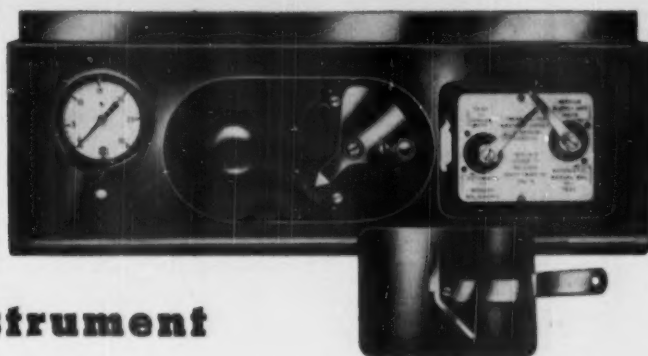
Atkins, Dan P. Ashton. THIRD ROW—Robert B. Bruning, John K. Spence, Joseph J. Boyle, Harry Larsen, Charles R. Hash, Claude Chebron, Robert G. Stewart, Fred L. Schmidt, Kenneth Booth, John C. Woodward, Francis Dowdy. FOURTH ROW—George O. Thomas, John W. McGimpsey, Dudley F. Church, Max L. Curtis, John W. Tilden, James F. Wuenschel, Jr. Not present for picture, Delbert M. Bush.





**No
other**

control instrument



has an external manual-automatic station

as mistake-proof as this

EXCLUSIVE mechanical interlock prevents switching into wrong position

EXCLUSIVE "balancing" arrangement prevents "bumping" on changeover

Among the many features which have put the Bristol Series 500 Air-Operated Controller way out front is the unique External Manual-Auto-matic Station.

1. "Test" and "Service" positions are mechanically interlocked. Operator cannot, by mistake, go through "Manual" position into either "Test" or "Service."

2. Output pressures of the controller and the regulator on panel are measured by the same gauge. This enables operator to achieve exact balance before going from automatic to manual control or vice versa, thus eliminating the possibility of a "bump" to the process during change-over.

Bristol's External Manual-Automatic Station is an integral part of the controller installation

... yet can be used independently for manually controlling the process *before* the controller is installed or *after* it has been removed for any reason.

Read what else Bristol Series 500 Controller gives you . . . calibrated control, single service adjustment, reset stops, etc. Write for new Bulletin A120 on Series 500 Air-Operated Controllers, THE BRISTOL COMPANY, 142 Bristol Road, Waterbury 20, Conn.



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AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

CROWN WILLAMETTE PAPER SCHOOL, 1936, Second Year (L. to R.):
FIRST ROW—Conrad J. Schick, Henry M. Threftfoot, Donald L. Montgomery, Emerick J. Dobo, Evalois King, June Crawford, Evelyn Jane West, Alan S. Rosenfeld, Wilbert Sanders, Pierce F. Barnett, Henry D. Burnett. **SECOND ROW**—Walter Jacoby (professor), Don A. Pickering, George F. Rink, Chester A. MacNeill, Jr., John L. Johnson, Floyd W. Blanchard, Harlan M. Meeker, Ferdinand J. Sobut, Charles E. Young, Arnold L. King, Harold E. Leach. **THIRD ROW**—Donald D. Sollenberger,

McClellan A. Thornton, Lauron R. Giersch, Albert J. LaRose, Joseph A. Paris, Fred W. Stoltz, Kenneth W. Clark, Earl L. Ellis, Basil Taylor, William R. Cudney, David L. Hall. **FOURTH ROW**—William R. Works, Jack M. Miller, Bruce K. Nichols, Donald E. Abbott, Robert F. Ditewig. Missing from picture—Donald L. Brinson, Wilbert L. Carr, Jr., Robert C. Gilardi, Donald F. Holden, George O. Medalen, Robert Plankinton, S. Ozzie Seida, Richard F. Urquhart.



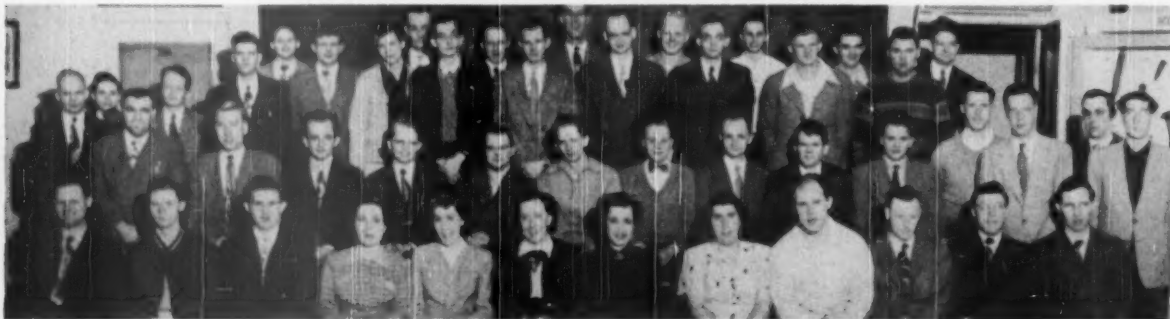
FIRST YEAR CLASS—Below (L. to R.): **FRONT ROW**—Roland G. Harris, Franklin H. Terrall, Robert R. Skill, John D. Elder, Theophil J. Wagner, Max A. Hohnbaum, Jack W. Buhler, Bernard Tonder, James H. Robinson, Charles S. Evans. **SECOND ROW**—John C. Gfeller, Richard T. Hukill, Milan B. Hill, Curtis S. Whetzel, Hubert M. Lyle, James B. Kitchell, Willard L. Carlson, Richard S. Chisum, Robert M. Cadd. **THIRD ROW**—Charles T. DeVoe, Charles C. Russell, Kenneth M. Bethune, Bernard D. Ritchey, William E. Scott, Kenneth M. Mortimer, William E. Ginder, Gerald L. Newberry, Everett H. Fitch, Robert L. Steinhauer,

Ralph A. Bold, C. A. Fields. Absent from picture—Roy D. Arnold, Wilfred Audette, Homer J. Baldwin, Sarah H. Baldwin, John C. Barnes, Donald H. Bergis, Charles J. Bloch, Orville E. Cushman, Alan R. Eagle, A. M. Fisher, Jr., John M. Gant, Stephen O. Gates, Walter L. Gill, Theron L. Hicks, Jr., Charles M. Hulse, Lee R. Johnston, Harold E. King, Willem Lageman, Gerald H. Lampkin, Clarence L. Macdonald, Jr., Ashton D. Marcus, Forrest D. Martin, Dewayne Meyer, Ernest D. Norton, Archie I. Otnes, Henry L. Ott, Roy D. Pearson, Marvin C. Riley, Robert B. Trosper.



CROWN WILLAMETTE PAPER SCHOOL, First Year Class (L. to R.):
FRONT ROW—Fay C. Mehlbrech, Ivan M. Brown, Jr., James L. Sartin, Margaret Salisbury, Denece Audette, Fanny Mackey, Marianne B. Centobar, Mary Mace, James Mace, Robert M. Soden, Walter Holy, Francis W. Crabtree. **SECOND ROW**—Alfred H. Somerville, William F. Farley, Charles R. Porterfield, Paul E. Hyde, E. A. Woodworth, Richard H. Kuhn, Jack C. Graves, Alfred W. Bolls, Robert G. Glass, Larry Leverman,

Richard J. Zak, Don Moritz, Melvin L. Tietz, Dale Darling. **THIRD ROW**—Oliver F. Chaplin, Walter I. Thione, John A. Galen, Walter E. Logsdon, D. E. Robins, Leonard E. Erhardt, Donald R. Schmidt, Raymond W. Nordstrom, Malcolm E. Burnett, Edward J. Feiss, Harold E. King. **FOURTH ROW**—Donald K. Preuss, Albert J. Beauchamp, Leslie H. Willms, Howard P. Burrelle, Glen L. Warren, James A. Hansen, Thomas C. Jewell, Harold E. Hickam, Elden E. White.



key men of C-Z organization for this particular use.

Oregon State College, the University of Washington, the University of London, and others, have or do grant full credit for work done in the school.

About 500 guests, officials, students, etc., were welcomed to this graduation by F. A. Drumb, resident manager at Camas. He called attention to the rapid development of new paper products in recent years.

Frank N. Belgrano, Jr., president of the First National Bank, Portland, Ore., in a talk titled "Wake Up, America," said the fate of the world may depend upon the fundamentals upon which this country was founded—valuing freedom of liberty based on freedom of enterprise. The real danger in America, he said, is in persons and organizations who are spreading disguised alien doctrines—known as the economic planners, the social planners, the welfare planners.

J. E. Hanny, vice president in charge of manufacturing, San Francisco, presented diplomas. A. G. Natwick, assistant

resident manager at Camas and dean of the school, presided and presented awards to honorary students.

John A. Grill and Leonard R. Greger, both of Camas, first and second place honor students, respectively, of the 4th year class, received a week's expense-paid trip visiting Pacific Northwest mills. Each 4th year graduate received a copy of George S. Witham, Jr.'s, "Modern Pulp and Paper Making."

Awards of other classes for the first and second place, respectively: Third year class—Paul T. Davis, West Linn, received a 3-volume set of "Pulp & Paper Manufacture"; John W. Tilden, Camas, received the Witham book. Second year class—Harlan M. Meeker, West Linn, the Witham book; Donald L. Montgomery, Camas, "Paper Making Through 18 Centuries," by Dard Hunter. First year class—John C. Gfeller and Charles T. DeVoe, both of Camas, copies of Mr. Witham's book; a third place award of Mr. Hunter's book to Forrest D. Martin of West Linn.

Honorable mention awards, consisting of one-year subscriptions to *Pulp & Paper* magazine were made as follows: First year—Allan R. Eagle, Jack Buhler, Willard Carlson, and Robert Skill, all of Camas. Second year—Bruce Michels and Pierre Barnett, West Linn; Fred Stoltz, Camas. Third year—Dudley Church, Howard Hall, Camas. Fourth year—Harold Dan-

iel, West Linn; Howard Rondeaux, Camas.

Regents of the school are Mr. Hanny, Mr. Drumb and C. E. Bruner, consultant for all mills, West Linn. Faculty—Dean A. G. Natwick; W. C. Jacoby, technical supervisor, principal and professor of 2nd year class; C. A. Eng-house, assistant to resident manager, West Linn, vice principal; L. F. Maybach, superintendent of process engineering, Camas, professor 1st year; A. W. Neubauer, supervisor of coating and sizing, Camas, assistant 1st year prof; Miles Cady, foreman paper machine millwrights, assistant 2nd year prof.; R. B. Haight, training and retirement supervisor, prof. 3rd year; C. T. Beals, technical assistant to the paper mill superintendents, Camas, assistant 3rd year prof.; F. W. Flynn, technical assistant to Kraft mill superintendent, Camas, prof. 4th year; George Bailey, paper machine designing engineer, Camas, assistant 4th year prof.; J. L. Edwards, specifications department, registrar; J. A. Butterick, head converting plant inspector, assistant registrar; C. A. Anderson, wood technologist, technical advisor. Faculty advisors—Paul V. Millard, assistant to supervisor of product quality and development, Camas; Gus Omtenson, manager of paper production, Camas; E. H. Nunn, technical supervisor, West Linn; F. B. Sievers, groundwood superintendent, Camas.

Guest instructors were J. M. Wilcox, Electric Steel Foundry Co.; C. W. Richen, C-Z chief forester; Pierre R. Hines, Stephens-Adamson Co.; Lowell Edwards, consulting engineer; F. W. Libby, head of Oregon geology department.

Personals



DR. JOHN McEWEN (left) Everett, Wash., Assistant Research Director of the Pulp Div., Weyerhaeuser Timber Co., is the new Chairman of the Acid Sulfite Pulping Committee of TAPPI. The Sulfite Committee had been headed for years by George McGregor of Research Division of Minnesota & Ontario Paper Co., International Falls, Minn., who asked to be relieved of duties.

T. E. DETCHER (right), who resigned from the G. D. Jensen Co., Watertown, to join The Barrett Division of the Allied Chemical and Dye Corporation, 40 Rector St., New York, working under R. M. JONES, who heads new products development. But you may meet him almost anywhere in the U. S. and Canada, because he is in sales development work on ammonium base pulping which of course includes both the ammonium bi-sulfite process and the neutral sulfite process.

WILLIAM M. LITTLE, office manager of Crown Zellerbach Corp., West Linn, Ore., was recently chosen as the senior first citizen of Clackamas county. He has been a C-Z employee since 1923.

H. RADFORD RUSSELL, assistant general superintendent, Everett Pulp & Paper Co., and SPUD HARTMAN, mechanical superintendent, Weyerhaeuser Timber Co., pulp mill, Everett, have two daughters who have been chums since kindergarten and this year entered Washington State College together. They are Polly Hartman, 19, and Sandra Russell, 18.

GEORGE V. JOHNSON, secretary of Elof Hansson, Inc., New York, is the new president of the U. S. Paper Exporters Council, Inc., which can be reached through Mr. Johnson at the Hansson firm in Manhattan.

JACK McMULLEN, personnel manager of Pacific Coast Paper Mills in Bellingham, promoted and dedicated a new home for the Bellingham Knights of Columbus during his term as Grand Knight of the Order.

WALTER SEWELL, timekeeper for Puget Sound Pulp, is a member of the Bellingham Barbershop Chorus, an a cappella group. Walter has been active in Little Theater work for several years in Bellingham.

RALPH G. DE MOISY has been named technical director of the Washington State Institute of Forest Products, succeeding DR. O. HARRY SCHRADER, who has resigned to accept the position of managing director of the Douglas Fir Plywood Association, Tacoma. Mr. DeMoisy formerly was assistant professor of forest engineering at Oregon State College.

DENNIS CRITZER, superintendent at Bellingham (Wash.), Paper Products division of Puget Sound Pulp & Timber Co., was a recent visitor in Seattle. He has a brother in the Container Corp. mill at Los Angeles.

JOSEPH MAZER, of the Hudson Pulp & Paper Co. of New York, has been named national campaign chairman for the 1950 United Jewish Appeal, which plans to raise funds for Israel, Europe and elsewhere totaling \$272,455,900. It is announced by Henry Morgenthau, Jr., former secretary of the treasury and general chairman of the United Jewish Appeal.



C. I. McNAIR, JR. (left), Vice President and Manager of Manufacturing, The Northwest Paper Co., with mills at Cloquet and Brainerd, Minn., was elected President for 1950 of the Minnesota Employers Association, a tribute to this industry and to Mr. McNair personally. He makes his headquarters in Cloquet.

LEE F. BUNDE (right), new Chief Engineer of Sutherland Paper Co., Kalamazoo, Mich., as was announced in our April issue. He succeeds the late Marion Fogarty. Mr. Bunde was Supt. of Engineering with Celotex for five years; Plant Eng. and Prod. Mgr. at Filer Fibre Co., seven years; Operating Mgr. at Otisago Falls Paper Mills three years before joining Sutherland during expansion beginning in 1948.

JOHN H. BEACH, Washington State College graduate, has been promoted to assistant manager, land department, Olympia, Wash., and WILTON L. VINCENT, Oregon State College grad., has been promoted to assistant manager, timber division, Hoquiam, Wash., Rayonier Incorporated. JOHN E. NORKOOL succeeded Mr. Beach as logging engineer in the Grays Harbor area. The land department moved to Hoquiam in February.

FRED HAJJAR, who for several years has made studies and reports on the pulp and paper and timber industries of Mexico, while an attache at the U. S. Embassy in Mexico City, has been transferred to the U. S. Embassy in Finland.



...this is Tree Farming



Seed Blocks Restock Cutover Land



Hand Planting on Burnt-Over Areas



Young Second Growth on a Tree Farm



Spotter Plotting a Fire Location



A forest is not like an oil well or a mine... consisting only of a given amount of irreplaceable material. Forests are *living things*... and given a fair chance will reproduce themselves, barring complete destruction of the seed source. In fact, for years it has been a Weyerhaeuser tenet that... "Man cooperating with nature can provide a new forest as good or better than the original." To further implement this basic concept of forest management, Weyerhaeuser has joined others in the forest industry in establishing over two million acres of certified tree farms in Oregon and Washington.

The Pulp Division, Weyerhaeuser Timber Company, will benefit from this enlightened cooperative forest management program through a guaranteed source of supply for its sulphite and sulphate pulp mills.



WEYERHAEUSER

OKAYS LIQUOR PIPELINE

Rayonier Mill Hearing Set for Oct. 1

A Crown-Zellerbach Corp. proposal to pump the sulfite waste liquor from its Camas, Wash., mill far out into deep water in the main channel of the Columbia River, previously reported in these pages, has been approved by the Washington State Pollution Control Commission.

"It will effectively correct the condition now existing resulting from the fungus growth (in Camas Slough)," said E. F. Eldridge, director and chief engineer for the commission.

In referring to the joint Soundview Pulp Co.-Crown Z ammonia base cooking and recovery experiment now under way at C-Z's Lebanon, Ore., sulfite mill, Mr. Eldridge said the results will be "analyzed in comparison with the magnesium base recovery process" now used on commercial scale at Weyerhaeuser's Longview, Wash., sulfite mill.

"One or the other of these processes, of course, will provide a permanent solution for the sulfite waste liquor problem," said Mr. Eldridge. Apparently, he had in mind a solution only for larger Washington state mills, as so far just a few of the larger mills have been affected by orders from his commission. For economical and other practical reasons, some experts are known to favor other solutions for smaller mills. Mr. Eldridge said the pipeline out in the Columbia was "not designed as a permanent means for disposal of the sulfite liquor from the Camas mill."

Likewise, Rayonier Incorporated, at Hoquiam, Wash., is enlarging its liquor ponding facilities. Mr. Eldridge said there would be a survey of the results and Rayonier then would be granted a hearing on Oct. 1, 1950.

The Camas and Hoquiam mills, and also the two sulfite mills in Everett, Wash., Soundview and Weyerhaeuser, received mandatory orders early this year from the commission "to install structures, equipment or other facilities to reduce the pollution caused by the discharge of sulfite waste liquor to meet the standards established by the Pollution Control Commission (below 5 parts per million of liquor solids) and to substantially complete this installation by Sept. 1, 1950."

Weyerhaeuser Hearing

The Weyerhaeuser Timber Co. was granted a hearing on its Everett mill at which time Howard Morgan, manager of the Pulp Division, objected to the Sept. 1, 1951, deadline in view of the ammonia experiment just getting under way and new difficult research problems facing any attempt to adapt the magnesium base system to mills (such as those in Everett) where wood comes from salt water.

"While the commission realizes that the date may be a little short, however, the commis-

sion is not inclined to change the date at this time," said Mr. Eldridge. He said Soundview and Crown Zellerbach did not request hearings. "Therefore our orders were made final in those two cases."

Camas and Hoquiam Problems

Regarding the Camas pipeline proposal, he said:

"This involves the pumping of sulfite waste liquor through a pipe line and channel over Camas Slough and Lady Island into the main channel of the Columbia River. In the main channel, the outlet will be in multiple form consisting of ten outlets extending across about three to four hundred feet section of the Columbia River main channel. This will distribute the sulfite waste liquor into a considerable volume of water. Surveys made on the Lower Columbia River indicated that the sulfite waste liquor discharged to Camas Slough was responsible for the growth of a considerable quantity of fungus known as *sphaerotilus*. This fungus, in breaking loose from the attachments in the river, floated down stream and interfered with the operation of fishermen's gear and other equipment. Studies made by this office indicated that if the concentration of sulfite waste liquor was lowered below five parts per million of sulfite waste liquor solids, there was not sufficient material for the fungus to grow. The outfalls into the Columbia River from the Camas mill have been designed

to provide for a concentration below five parts per million of sulfite waste liquor solids at low water.

"The commission has been informed that Crown-Zellerbach and Soundview Pulp Co. have entered into a joint project at Lebanon. The mill at this place has been converted from calcium to ammonia base, and an attempt will now be made to burn the sulfite waste liquor from this base cooking process. If this proves successful, it will be analyzed in comparison with the magnesium base recovery process at Longview.

"Rayonier Incorporated at Hoquiam have proposed that they enlarge their ponding facilities and make such changes in the mill as will allow them to discharge more of the sulfite waste liquor to the pond. This liquor is ponded during low water periods or when the oxygen in the river and Grays Harbor becomes lower than five parts per million, which is the standard established by the commission. The waste liquor is then discharged during high water. Arrangements will be made for under-water discharge during high water, and for control of this discharge. These changes in the Hoquiam mill will be made prior to the coming summer, and the effect will be noted by a survey made by the commission. After this survey has been completed, the mill will then have a hearing which they have requested for Oct. 1."

PAPERMAKING IN KOREA

Official government representative for the 16 paper mills of Korea, Kim Wun Chun (right) has returned to his homeland from the west coast after nearly four months spent in visiting many Eastern, Middle West and Pacific Coast pulp and paper mills.



Mr. Kim, who is general manager of Puksun Paper Mfg. Co., Ltd., Kunsan City, Chollapukto, South Korea, largest government owned mill in his country, told PULP & PAPER in a final farewell interview that he was much impressed with the modern and efficient equipment in U. S. mills but that "it would be impossible under existing conditions" to apply many of the ideas he had observed in Korea. For one thing, he said the nation is in a bad way economically and forces beyond its control dominate the situation.

Mr. Kim's mill has a capacity of about 50 tons per day of newsprint, book and writing paper, but is currently producing about 20 tons. The mill has two machines, a Beloit 112-inch and a Black and Clawson 110-inch. The Beloit unit operates at about 300 feet per minute. The plant has two grinders of the four pocket type powered with 850 hp motors, using 5-ft. diameter, 2½-ft. thick natural sandstones

obtained in Japan. American wires and belts are used.

The mill employs about 350 persons, including 70 men in the maintenance staff. Due to scarcity of spare parts the company maintains a very complete machine shop and foundry. Maintenance is an important and costly phase of operation.

The company uses about 30% chemical pulp and only 70% mechanical pulp due to power shortage. The mill operates on an 8-hour, seven-day week basis. A machine tender makes enough money per day to buy about 20 eggs. A pair of leather shoes represents half a month's pay.

Red pine is the raw material. Average age of the trees is about 25 years. Logs average from 6 to 12 ft. length and 5 to 8 inches diameter; are transported by water and by the four G.M.C. company-owned trucks. The plant has a mechanical barker but it is not used. Barking is done with a hand scraper resembling a huge safety razor. They bark by hand to save power and to provide work. Several million people have come into South Korea from North Korea.

All paper is turned over to the government which sells it in the Korean market.

A good deal of paper is hand made in Korea. In fact, it is an important home industry. Many farmers make high-grade papers from Mulberry fibers. They produce sheets up to four feet and one family will turn out as many as 500 sheets per day.

MACHINE TENDER Munchausen Stories

For the first time since we started publishing this corner for "tall tales" from the mills, an "affiliate" of the industry—a supply and equipment man—has come through with a story for us. Up to this month, ever since the column was inaugurated last September, all the stories had come from mill men.



Harry H. Richmond (left) is your story teller this month. For many years, Mr. Richmond was chief engineer of Electric Steel Foundry Co., Portland, Ore., and he is one of the industry's real pioneers in development of special equipment for the sulfite pulp industry in particular. Now he is the organizer and first director of a new training and education program for

young Esco representatives in offices in all parts of the U. S. and Canada. One of his three sons, Bob, is an engineer with Esco in Portland. Mr. Richmond is truly a self-made engineer, starting his career in the electrical field, and he was with Willamette Iron & Steel when he first moved to Portland. With Esco, he became a specialist in stainless steel applications for pulp and in circulating systems, and practically lived in some of the big Coast mills in developing these. He has been a leader in encouraging and aiding industry association activities and last fall he was honored by election as the International President of the Brotherhood of Migratory Peddlers, which have "waiting room" locals in the East, South Midwest and Coast industry regions. A fun group, but also created for the serious purpose of aiding association activities.

PULP & PAPER pays \$5 for each story published here. Whether you are mill man or "peddler"—you can try your hand—send us a story. We assure you it doesn't have to contain even a shred of truth and names and places can be suppressed.

Here is Mr. Richmond's story:

The Original "Big Inch"

Considerable has been read and heard in the last few years of the tremendous oil and gas pipe lines which have been laid across country to convey these materials to refining and marketing centers. We have all heard them referred to as the "big inch," but very few of us really appreciate that the honor of this christening the project belongs to the pulp and paper mills of the Northwest and was the direct outgrowth of a fierce feud between the operators and the maintenance crew of a certain mill, which for the purposes this recounting must go nameless.

Now Big Paul was one of the boys who juggled the rolls behind the calendar stack. He was a splay-footed individual who had been unanimously voted by his gang, Mr. Broke for the 1900's. His memorable moronic achievements were un-

challenged. It is unfair to suppose that this was due at all to his pedal handicap which was due to an accident—he had been dropped while an infant and lit on his feet—but rather to his inventive imagination which always supplied a fresh piece of stupidity when the crew had just run fresh-out of any of their own. He had a face as long as a horse's, which he wore over the front of his head tighter than a lobbyist sticks to a congressman. He got his name from the fact that he was always hearing bells and seeing lights, until he fell into the habit of spending his nights like Paul Revere—out horsing around.

The chief of the machinists on the maintenance crew was named Mike, who strangely enough had inherited both his given and surname from his father—an old custom of the family. Young Mike was quick to pick up things that were useful in his trade, although his Dad claimed to have picked up better stuff in his early days when he drove a garbage truck. Mike had fixed everything about the mill for many years, except the big boss. His jobs usually went nuts and bolted, which accounts for his lack of success with the boss, whom everybody considered nuts anyway.

The feud between these boys was of long standing. Big Paul considered Mike as one of those black and white pussy cats with a fluid drive. Mike greeted Paul with such frigid austerity and contempt that even their red flannels turned blue whenever they passed within forty paces.

One day someone dropped a monkey wrench in the machinery and one of the rolls became damaged. It was an old roll and had been roundly cursed by all the boys for some time. The foreman of the calendar crew ordered it removed for repair and specified that it should have a five-thousandths camber. Paul misunderstood the command and while away looking for a proper piece of cheese, the job was turned over to Mike, who swung it on centers in his lathe and starting grinding out the blemished portions. The job was a "natural" for him, he being a natural-born grind anyway, and a deep thinking man who always put his problems away for a brainy day. Now, Paul (who always said, "when you're not miserable, be happy") was very miserable indeed when he saw Mike at this job. He glared from the doorway as if Mike were the head pot man in a cemetery flower shop. He watched the huge tube (a thick strip of metal wrapped around a lot of empty space) turning around and around. Now he had surely been around himself, ob-

viously a few times too many, and it gave him an awful turn. With horror he watched Mike stop the machine and cautiously approach the roll with a crescent-shaped gimmick, which he later carried away to a strong light and examined minutely. Paul watched, asked information from some passing machinists, and started back to report to his boss. After becoming suddenly aware that he had absent mindedly dropped the telephone in his pocket, he darted off.

Paul reported that the tube was "bugs" and would never be fit for use. "Why," asked the boss. "Because," replied Paul, "Mike is measuring it with a Microbe-Meter." "What does he measure with that?" asked the boss. "Thousandths of inches," replied Paul. "Humph," said the boss, reflectively. "How many thousandths are there in any inch, anyway?" Paul snapped back instantly. "Oh, there's millions of 'em." "Well," mused the boss, "we will probably have a 'big inch' somewhere in the pipe." "Nope," said Paul, "a bug inch." Thus was started on its infinite way, the tradition of the big inch. Poor Paul, he looked as if he had forgotten to water the plants, and Mike, all smiles, ended the fierce feud by saying: "You can pick out any one of the nasty things I've said about you and I'll take it back."

Hansel Hydraulic Barker Made for Springfield, Ore., Mills

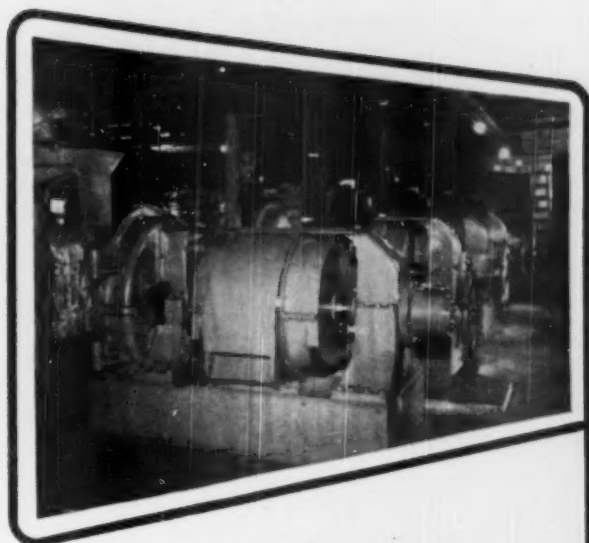
A Hansel Engineering (Vancouver, B.C., and Seattle) 70-in. diameter ring type hydraulic barker has been completed in the Washington Iron Works shops in Seattle and will be shipped to Weyerhaeuser Timber Co., Springfield Ore.

The barker will provide bark-free wood from the sawmill for use in the kraft containerboard plant which was started up last year.

This barker is basically similar to ones designed by Frank Swift of Crown Zellerbach Corp., and by Bloedel, Stewart & Welch, Inc., engineers, but with several new features. A Hansel barker is operating at the Bloedel kraft mill in Port Alberni, B. C., and two others are being made for an Idaho mill.

Essentially, the machine consists of a rotor, which carries two nozzles at opposite sides of the ring through which the logs pass, and which rotates between micarta strip seals in a stationary member to which water of over 1100 psi. can be supplied.

Hydraulic pressure behind the micarta strip hold it close to the rotating part. Actually seals on each side run on a small film of water. This type barker has three advantages, according to designers: (1) Can take logs of unlimited length; (2) is economic in water use, the amount of water required per square inch of barking surface can be controlled, and (3) requires a minimum of maintenance.



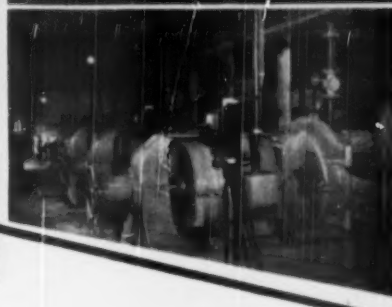
Mills that compare Refiners

choose

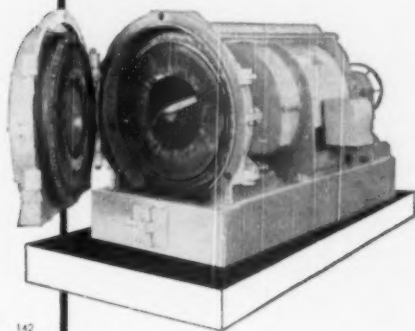
Sprout-Waldron

THE OTSEGO FALLS INSTALLATION

*Photographs showing a battery of S/W Refiners
Installed at the Otsego Falls Paper Mills, Inc.
Otsego, Mich.*



S/W Refiners do a wide variety of jobs—all of them thoroughly and economically. Here are some applications: refining kraft, soda, and sulphite knatter and fine screen rejects; hogged bull screen rejects; knatter and second screen rejects of raw groundwood; semi-chemical chips of all kinds; spent chips after extraction process; bagasse, straw, and similar grasses; breaking down lumps in reclaimed waste paper stock; reduction and refining of rag and other half stocks, etc., etc.



142

Sprout-Waldron Refiners do an excellent job in any kind of pulping, but in semichemical operations they far outperform similar equipment. They do more, do it better, and at less cost.

Their unique peripheral control ring feature provides great flexibility of adjustment which enables mills to produce a wide variety of pulp characteristics. With the Sprout-Waldron you can pinpoint exact pulp requirements. Rugged, long-wearing plates are available in many styles. They are easily changed, and are inexpensive.

These precision engineered Refiners involve a comparatively low initial investment. Additional savings are achieved through high production rates, economy in power consumption, ease of operation and maintenance.

A Sprout-Waldron representative will be glad to explain how these Refiners can increase your output and save on operating costs.

Write for Bulletin 41 which contains pertinent data on this equipment and how it can serve your needs. Sprout, Waldron & Co., Inc., 32 Waldron St., Muncy, Penna.

Sprout-Waldron

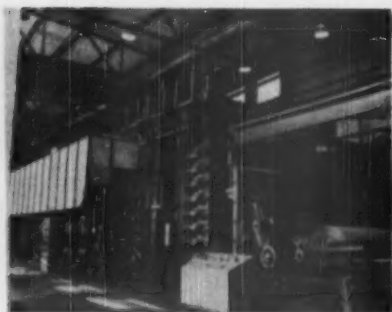
Manufacturing Engineers

SINCE 1888

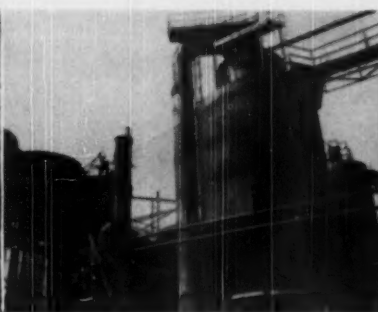
MUNCY, PENNSYLVANIA

ALABAMA MILL GROWS

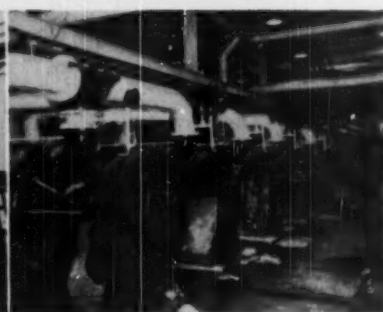
VARIED EXPANSION AT TUSCALOOSA



AT GULF STATES PAPER CORP., the Beloit outside calender stocks and winder. These have Westinghouse control.



Earl Paint Corp.'s Erkote Mastic protects above installations: At left, cold water in upper tanks, warm water below. In center, condenser; on right, blow tank and foam tank in rear.



Line-up of five new Shortle Bros. Miami No. 3 jords. On line above are DeZurik two-way stock valves.

Marking another milestone in the growth of an enterprise founded decades ago on the basis of furnishing quality merchandise to the buyer, the Gulf States Paper Corp. of Tuscaloosa, Ala., is producing from its third Beloit machine and has been engaged in installation of other facilities included in its expansion program.

The mill converts its own paper into bag and wrap. It markets through the E-Z Opener Bag Co., whose original operation in the South, at Orange, Texas, probably served as the first exclusive conversion of kraft paper into bags. The company had previously made sulfite products in the Midwest.

The company's expanded capacity is now up to 350 tons daily instead of 200 tons. Also there is an enlarged converting plant.

Plans for the addition were developed by the H. K. Ferguson Co. of Cleveland, Ohio, and W. E. Penfield, vice president of the Gulf States Paper Corp., with H. T.

Baker, paper consultant for the H. K. Ferguson Co. General construction was executed by the H. K. Ferguson Co.

The new Beloit machine has a wire 170 inches wide and 110 feet long. It is credited as among the fastest machines in the South (1800 ft. per minute). The mill's equipment also includes a 238-inch Beloit, and a smaller 138-inch Beloit, originally built in 1901 to produce paper from bagasse at Braithwaite, La. When first built this unit rated the world's "biggest," producing 10 tons daily at 150 feet per minute. It has been successively re-built to produce 50 tons at 900 feet now.

The newest Beloit has two suction presses, a smoothing, a breaker, and a sizing press, also a stainless steel pressure head box. Auxiliary equipment includes a Midwest-Fulton draining system, Bowser lubrication, and a 1200-hp. Westinghouse turbine belt drive. Of its 60-inch dryers in three sections, 43 are for paper and 12 for felt. The fan pump is a Westinghouse-

driven Ingersoll-Rand unit. Stock consistency is controlled by three DeZurik regulators for each of the three machines.

Each of these regulators is of stainless steel construction and equipped with regulating stuff gates together with quick shutoff gates permitting shutting off the stock flow without disturbing the position of the stock regulating gate. The outgoing consistency control—one thumb screw to turn—is the only adjustment necessary after the regulator motor is started and stock is in the regulator. DeZurik showers are used on all machines, too, including the new one.

The stock chest agitators below the machine are driven through Philadelphia Gear Works equipment with stock itself moved by Warren centrifugal pumps. These, as well as the Nash vacuum pumps, are Westinghouse driven. The pumps are served by DeZurik easy operating two-way pulp and paper stock valves. DeZurik valves are also used for handling

EQUIPMENT AT GULF STATES: The Dorr Company causticizer installation; new lime kiln at right.



Digester feed floor, shown here, is kept in good order at Gulf States.



Warren centrifugal stock pump serving the paper machine. Directly above pump is one of DeZurik's easy-operating, two-way pulp and paper stock valves; there is also one to left on line leading from jordan.

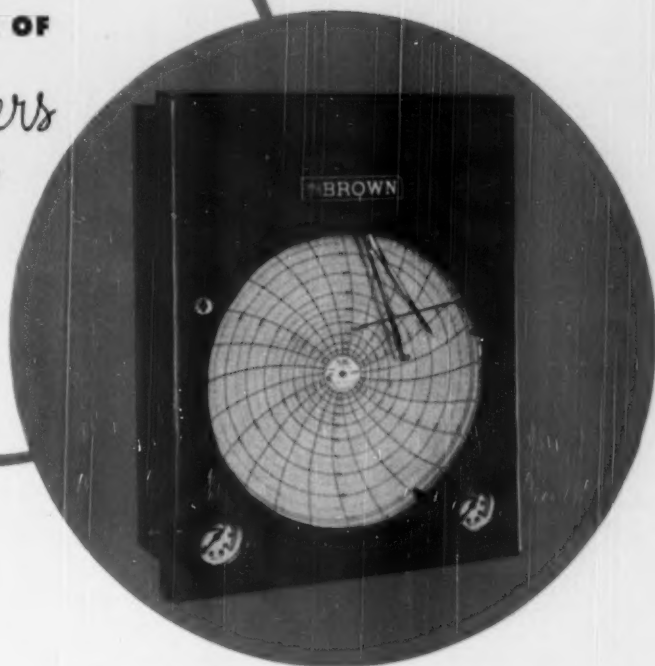


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Typical is the acceptance in the industry for the Brown Electric Flow Meter, pictured above. Paper men report that this instrument requires a minimum of cleaning . . . that the absence of electrical contacts inside meter body reduces maintenance . . . that its interchangeable range tubes make it easy to accommodate process changes without replacing orifice plates . . . that the meter body can be located close to the point of measurement and the controller close to the operator.

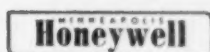
Every Brown Flow Meter is available with a wide selection of pneumatic control forms . . . on-off, narrow and wide proportional band, and proportional plus reset (Brown Air-O-Line).

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FOR THE PAPER INDUSTRY



pulp and paper stock from the jordan. It is interesting to note that in this job DeZurik furnished all of the pulp and paper stock valves as well as five DeZurik regulators. The Warren Steam Pump Company furnished twenty pumps of various types and services during the four-year period during which the mill has been engaged in its expansion program. These units included pumps for pumping stock of various consistencies and at various cycles of operation, also for pumping black, white and weak liquors, general water service, and boiler feed. When the mill was originally built at Tuscaloosa, most of the pumps came from Warren.

The machine has two open-side stack calenders, which were provided by Beloit, the same source providing the reel. Cameron Machine Co. furnished a Type 20 Camachine re-winder.

For handling rolls and other heavy duty, a Shaw Box crane supplied by Manning, Maxwell & Moore, Inc., is installed above the machine.

Immediately back of the new machine are five Shartle Bros. Miami No. 5 jordan, which were added to a line of 15 Miami's. A 14-foot Shartle Hydrapulper is provided for broke. An hydraulic-type freight elevator serves the machine building.

Expansion Started in 1946

The expansion program started in 1946, initial work including enlargement of the buildings, and installation of a 7500 KW Westinghouse turbo-generator, a Goslin-Birmingham quintuple-effect evaporator system, Chicago Bridge & Iron tanks of various services, a Cottrell precipitator, a Traylor lime kiln, a Dorr causticizing installation, and a Babcock & Wilcox recovery boiler. These went into service at various times during the intervening period.

Being completed now is a new wood room.

Bleaching

Being completed also is the 50% expansion of the Impco bleach plant. The sequence is as follows:

Low density continuous chlorination followed by a wash going to an Impco continuous high density down-flow caustic extraction tower.

The pulp is then washed continuously over an 8x6-ft. high density caustic washer, passed through a double shaft mixer, into an Impco continuous down-flow high density hypochlorite tower followed by a final wash. The finished pulp will go to high density storage or to process. Bleach plant pumps were from Shartle Bros.

Washing

The additional wash room equipment replacing diffusers includes three 8x12-ft. Impco black liquor washers operating counter current and has a completely closed system.

PAPER MILL IN A COLLEGE TOWN

When the Gulf States Paper Corp. determined to build one mill that would serve as a concentration of its productive capacities at Braithwaite, La., and elsewhere, it had a wide field from which to choose. That was decades ago, and competition for sites was not nearly so keen as currently.

At Tuscaloosa, the company chose a site where the famous Alabama agricultural belt touched the strip of rough pine bearing hills. Farther to the south lie counties that register among the first in the U. S. for forest products.

There are no football fans who have not heard of 'Bama. The University of Alabama affords the Tuscaloosa community with that select atmosphere found in a truly college town. Well shaded by trees, the thoroughfares reveal wide-spaced homes for gracious living. The Warrior River banks accommodate several quite important plants, including that of Reichhold Chemicals, Inc. Industry is in the position of offering opportunity to the university lads.

The metropolis, Birmingham, is only about 50 miles away. Tuscaloosa dates from back in the Indian days; was always some sort of

important point.

The Warrior River has been canalized and is an active waterway to the Birmingham steel and coal center and to Mobile and New Orleans. In time, this will be connected with the Tennessee and the Ohio. The paper mill draws coal and pulpwood by river.

Warrior River floats a fleet of skiffs and cut-board motor boats that constitute the paper mill fleet, used by employees who live on the west bank of the Warrior and find it more convenient to drive to the river and cross by boat than to go the long way across the bridge. The "flagship" is a large boat the company uses for festive occasions.

Gulf State's vice president and personnel director, Harry H. Yoder, an old-timer with the company, bemoans the fact that the company's employees "live all over the county" and can't easily get together outside of working hours, but this family-owned operation with eight decades of experience does not unduly suffer because of this; in fact, its entire supervisory staff would feel deeply hurt should any employee have a complaint and not bring it right in.

The washed pulp goes through Impco knotters to Trimble Rotary screens and four rows of combination 12 and 14-plate Impco flat screens followed by an 8x12-ft. Impco vacuum type decker.

Instrumentation of the three-stage Impco stock washing system was provided by Bristol, and DeZurik furnished the stock regulator on the inlet. Pumps were supplied by Shartle Bros. Bristol synchro-valves are also found where the stock is handled below the machine.

Receiving the stock from the blow tank at about 3½% consistency, and containing in addition to the fiber, all the knots and screenings, a size No. 3 DeZurik regulator reduces the consistency to 2½% for further processing. This DeZurik regulator uses a 1 hp. motor totally enclosed type to drive the stainless steel feeder type agitator. Dilution is two stage, using a 2-inch valve with stainless steel trim for introducing that portion of dilution direct to regulating chamber, and a 4x3-inch valve of same construction partially reduces stock consistency just prior to entrance into the regulator. Regulator box is completely fabricated of 302 stainless steel. The usual overflow is omitted in this unit and a liquid level control unit is installed in the stock inlet chamber for maintaining proper head of stock in the regulator.

Deckers

After washing and screening the stock is deckered on two Oliver Vacuum deckers, which concentrate to between 10 and 12% consistency on the cylinders with average capacity of 350 tons per day. The cut flight spiral conveyor type repulper following each thickener, breaks up and dilutes the stock and discharges it by a common spout between the deckers to a DeZurik 3A special pulp stock regulator.

By means of a predilution valve over the above conveyor, and automatically controlled by the regulator, first stage dilution reduces consistency to about 5%

and prepares the stock entering the regulator for final consistency control within the regulating chamber to the 4% required for further processing. The special stainless steel pan type regulator used fits into the floor and discharges the finished stock by gravity into a large stock chest. Handling the stock in this manner instead of direct to the refiners assures this mill of a large volume of properly regulated stock ahead of the refiners should any delays occur in washing or screening operations.

Cooking

Fifty per cent more cooking capacity was provided by installation of Blaw-Knox digesters which are serviced by a Fibre Making Processes liquor circulating system designed for either direct or indirect cooking.

The blow tank outside has a condensing heater and in conjunction a Foster-Wheeler heat recovery installation. The cold water tanks are elevated with the warm water tanks below, with the flow of water under automatic instrument control. The foam tower and breaker are from Impco. The blow tank, cyclone and supports, heat exchanger, condenser and hot water accumulator tank, cold and warm water tanks, foam tank, down pipe and all 48-inch vapor lines are protected from corrosion by a coating of Erkote Mastic, manufactured by the Earl Paint Corporation. This product is being used extensively in the southern pulp and paper industry following a ten-year successful test under most severe conditions at one of the industry's big mills.

This is a mastic made in a medium plastic consistency and composed of Gilsonite and Mid-Continent asphalt, plasticized and mixed with mica, clay and asbestos fiber. After thoroughly cleaning the surface, the bare metal is given a passivation treatment with Erkote Metal Conditioner (composed of phosphoric acid and

You should try



Swift's new process* Glue...

for Clay and Pigment Retention,
for Saveall Systems,
for Improved Pick Test.

Many paper mills are using this improved product in their formulations. They're having remarkable success. Swift's new process Glue helps maintain clay and pigment retention at a high, uniform level, helps operate flotation-type Savealls with more efficiency, and helps produce paper with a higher Pick Test.

High Retention of Clay and Pigment!

In slick paper production, Swift's new process Glue is being used successfully. It saves an unusual percentage of clay and titanium dioxide by keeping it on the screen. And it is economical because it can be used at low concentration. Swift's Glue is easy to prepare—easy to handle.

High Recovery in Flotation-Type Saveall!

In the Sween solution, Swift's new process Glue has a very high recovery efficiency. Mills report an increased fibre recovery because Swift's Glue tends to "flock" at the right time. Results are consistent and uniform.

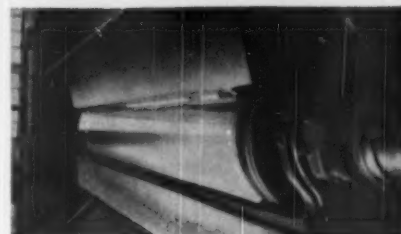
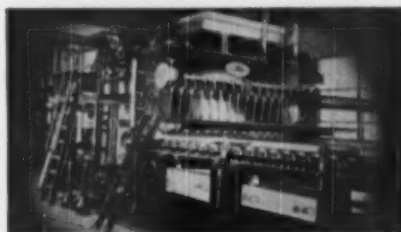
Swift's new process Glue is easy to handle in this operation, too. It goes into solution rapidly with a minimum of foam. Clearer effluents are obtained.

Higher Pick Test

In production of paper that needs increased Pick Test, papermen have found Swift's new process Glue an efficient agent. As a partial replacement for starch in a machine coating operation, Swift's new process Glue has shown greater film forming properties and tensile strength than a total starch solution.

Another desirable characteristic of Swift's new process Glue in this operation is that it is a natural, water-soluble type of protein which is grease-resistant.

For more information write



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Adhesive Products Department PP-1-a
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Please send _____ lbs. as an introductory trial shipment of Swift's new process Glue at the quantity price, to be tested for use in our operations. We understand if not fully satisfied, it may be returned for credit at your expense. (This offer expires June 25, 1950)

Firm _____

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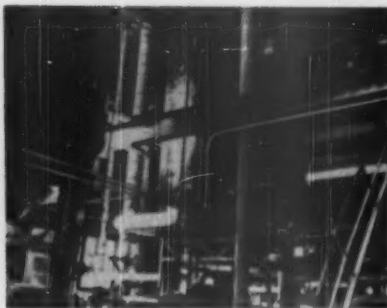
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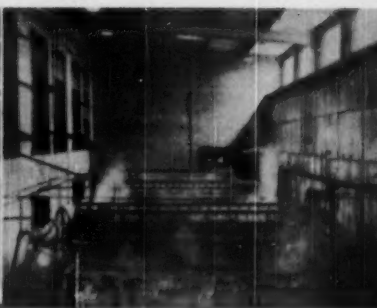
Signed by _____

*Swift's new process Glue made by an exclusive process!

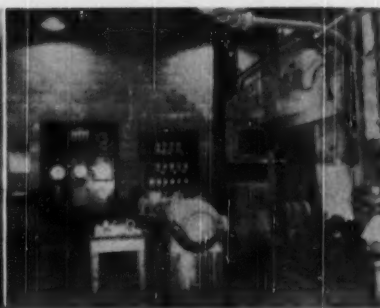
Swift's new process animal Glue is a highly efficient processing agent because it is made from fresh bones by an exclusive, patented Swift method... a method that assures a uniform, light-colored glue of unusual purity. This method permits precise synchronized control and minimizes contact with foreign or contaminating substances.



GULF STATES PAPER CORP. Equipment shown here includes three added Blow-Knox digesters which are served by Fibre Making Process liquor circulating system.



Improved Paper Machinery 3-stage washers were added to handle stock for the new machine.



Operating floor of new Babcock & Wilcox recovery boiler. Instrument board shows at left Gal./Hr. and at right Lbs./Hr. Recorder is in center.

a grease solvent) which completely cleans and etches the surface; after which with special equipment and highly trained men, the mastic is sprayed on at the rate of seven to eight gallons per 100 sq. ft., forming a heavy film which when dry is inert to most all types of chemical reagents, adheres tenaciously to metal surface, and is said to withstand temperature cycling from minus 40°F to 300°F without cracking, running or losing its bond. It is exceptionally resistant to moisture.

Erkote 3X Corrosion Resisting Insulat-

ing Mastic, made from the base 2X material plus ground cork, is installed on three hot water storage tanks.

Four old diffusers are being used by the mill as auxiliary stock tanks.

The Babcock & Wilcox 150-lb. bark burning boiler is equipped with a Thermix, Pratt & Daniel integral stack and fans. Fuel is fed to the Hoff furnace from two bins by automatic screw conveyors. The stack for this furnace has a distinctive flaring appearance.

Svenska Cellulosa Aktiebolaget, Stockholm; Kenwood Mills, Arnprior, Ont.; Johnson Wire Works, Montreal; Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.; E. D. Jones & Sons Co., Pittsfield, Mass.; Appleton Machine Co., Appleton, Wis.; Fitchburg Screen Plate Co., Fitchburg, Mass.; Castle & Overton, New York; Nash Engineering Co., South Norwalk, Conn.; Bird Machine Co., South Walpole, Mass.; Cheney Bigelow, Springfield, Mass.; John W. Bolton, Lawrence, Mass.; Hall & Kay, Ashton-under-Lyne, Lancashire, G. B.; and Nordiska Metallduksvaveriet, Uppsala, Sweden.

IN MEXICO'S INDUSTRY



CARLOS GARCIA ROBLES (left), who was Asst. Mgr. and engineer for the new El Fenix Paper Co. Mill in Mexico City, has opened his own office as Engineering Consultant and Representative of Foreign Equipment firms at Ave. Juarez 30-306, Mexico, D.F. **MANUEL DEL CASTILLO, JR.** (right), for six years Representative of various equipment firms, with offices at 1 La Catolica 45, Mexico, D.F., and formerly with San Rafael Paper Co. Among his firms are E. D. Jones & Sons, Appleton Machine, Fitchburg Screen Plate, Cheney Bigelow, Nash Engineering, Sandy Hill and Bird Machine.

Garcia Robles Opens Office

Carlos Garcia Robles, who served as assistant manager and construction engineer of the new El Fenix Paper Co. mill built in 1947-48, in the northern outskirts of Mexico City, has left that company to open his own office as an engineering consultant and is planning to represent

foreign supply companies. His firm, Garcia Robles S. A., has offices at Avenue Juarez 30-306, Mexico, D. F., telephone 35-32-87.

Sr. Garcia Robles guided a PULP & PAPER editor on a tour of the Fenix mill (described in Sept., 1948, issue, page 48). He graduated from University of London as a civil engineer, and worked in the technical department of the San Rafael mills and later for ten years on industrial construction in Mexico City. His father was former general manager of Progreso mill of San Rafael Co.

Manuel del Castillo, Jr.

For more than 20 years Manuel del Castillo, Jr., has been closely associated with the pulp and paper industry of Mexico, a large portion of that time at the big San Rafael mill south of Mexico City, but more recently as a representative of foreign firms.

In a letter to PULP & PAPER, he wrote:

"The very complete articles with photographs which you have published in the past year or two have given a very fine picture of the industry in our country, and we are very pleased that you have given this attention to the developments in our industry."

His company is Importaciones y Exportaciones Mexicanas—Manuel del Castillo, Jr., with his address: 1 La Catolica 45 Desp. 711-712, Edificio Abed. Mexico, D. F., Mexico. Phone: 35-06-70. Firms he represents are:

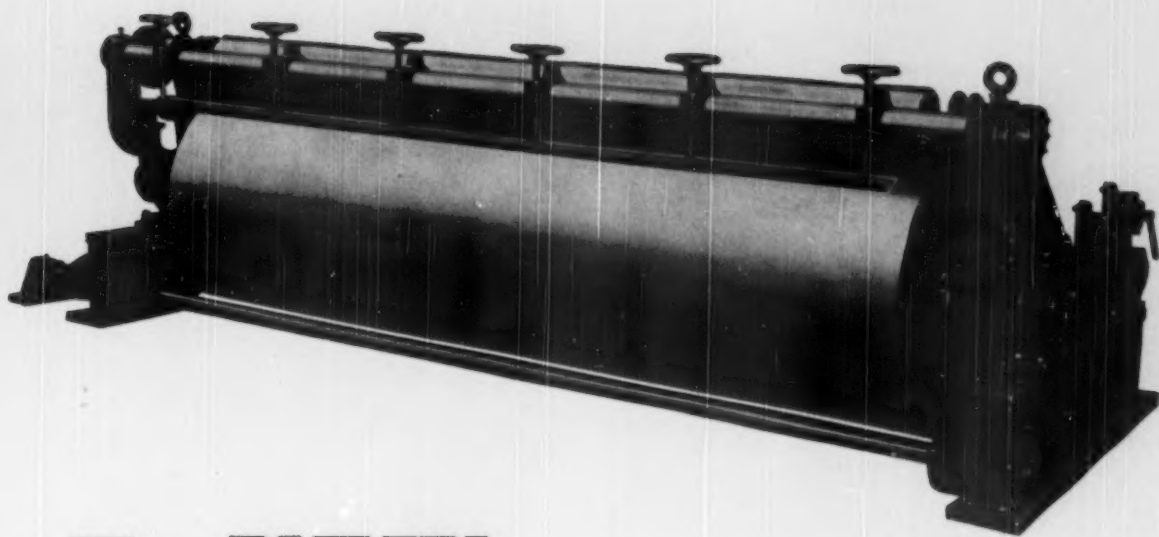
Central Sawmill for Atenquique, Mexico, Mill

The six small sawmills in woods camps in the state of Jalisco, which have been serving the Compania Industrial de Atenquique kraft mill in Mexico since it started up in January, 1947, are to be abandoned and a central sawmill at Atenquique, alongside the mill, will prepare all wood. PULP & PAPER is advised in a letter from 30-year-old Antonio Sanchez Aldana, former Santa Clara University student, who is superintendent of Union Forestal de Jalisco y Colima, the separate timber firm which supplies the mill.

There have been studies made to possibly adapt whole log hydraulic barking and chipping here, as this is the only mill in the entire Western World using virgin wood entirely—up to 20 to 30 inches diameter and larger. For present chipping, there is 6 to 8% wood loss as logs are usually split from two to 10 times, and must be reduced to 5 ft. 3 in. in length and less than 18 in. in diameter. Rings of one virgin pine cut for the mill show it was 179 years old.

Mexican Mill Installs Machine

Cartonajes Estrella, board mill in Mexico, is installing a second hand cylinder machine for the manufacture of containerboard, according to word to PULP & PAPER direct from the Mexican Capital.



The **NEW** AIR-OPERATED REEL

This air operated reel is definitely new! It was designed with ease of operation, accurate control and mechanical simplicity constantly in mind. Two small air valves are all the control required for the operation of the reel shaft position. With these valves, you can accurately control the pressure of the roll upon the drum. There are no hand wheels that have to be manually operated.

Tension being easily controlled you are assured of a uniform roll . . . with smooth winding from the start. Operators using this reel maintain it's exceptionally convenient to handle.

Write us about this new air operated reel and any other paper mill equipment you may need. We'll gladly give you the benefit of our 80 years experience in paper mill machinery manufacture.

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Personals

News About Industry People From Coast to Coast



KIMBERLY-CLARK OFFICIALS (left to right): C. W. CLIFFORD, Vice President K-C Corp., Neenah, Wis., and GUY M. MINARD, Mill Manager, Spruce Falls Paper & Paper Co., Kapuskasing, Ont., congratulate C. W. BOAST, Chief Engineer, on his 25th anniversary of service with the "Kap" Mill.

RUSSELL WAYNE WHITNEY, vice president of Hinde & Dauch Paper Co. of Sandusky, O., died recently at his home in Montclair, N.J., at 61. He had been with the company 40 years. During World War II he was a director of the paperboard division of WPB.

LEON C. PALMER, personnel director of Combined Locks Paper Co., Combined Locks, Wis., died recently after a long illness. He was 49.

W. C. R. JONES, whose appointment as mill manager of the new Columbia Cellulose Co. pulp mill at Watson Island, B.C., we announced in our April issue, assumes his new duties on May 1. (Picture, page 24, April issue.) Mr. Jones has been in the industry for 20 years, starting with the Gatineau mills of Canadian International Paper Co. and then with the Wayagamack division, Consolidated Paper Corp. In 1937 he went to Australia to assist in the design and operations of the first chemical wood pulp mill in that country, at Maryvale. In 1940 he returned to Canada, and for the past seven years he has been assistant manager of the Beauharnois division, Howard Smith Paper Mills.

GUS OKERLUND, personnel manager for Puget Sound Pulp and Timber Co., served as general chairman of the recent jamboree and court of honor of the Boy Scouts for Northwest Washington. Gus has two boys, Garry and John, in the Scouts.

HERMAN M. GRASSETT, who left his post as assistant to the president and manager of mills of American Tissue, Holyoke, Mass., is now with Personnel Service Associates, 115 State St., Springfield, Mass. The firm specializes in placing men of executive ability and Mr. Grasset will be in charge of a new department for the pulp and paper industry. He is among the most prominent mill men in New England, and a member of the American Pulp and Paper Mill Superintendents Association.

Back From Swedish Trip

R. S. Wertheimer, vice president and resident manager of Longview Fibre Co., Longview, Wash., and **W. W. Clarke**, paper mill superintendent of that organization, recently returned from a 12-day trip to Sweden, observing new developments in pulp and paper industry.

There they visited Stjernfors sulfite pulp and paper mill at Stalldalen and Uddeholms kraft and sulfite pulp and paper mill at Skoghall. Travel both ways was by plane.

NILS G. TEREN, Portland, Ore., vice president of Oregon Pulp & Paper Co., Salem, and **Columbia River Paper Mills**, Vancouver, Wash., vacationed for a couple of weeks at Santa Barbara, Cal., with his family.

LAWSON P. TURCOTTE, executive vice president Puget Sound Pulp and Timber Co., and **V. C. GAULT**, supervisor of industrial and community relations for Crown Zellerbach Corp., Camas, Wash., were appointed as members of Washington state industrial development committee by Gov. Arthur B. Langlie.

CHARLES ACKLEY, paper mill supt., Crown Zellerbach, West Linn, Ore., reports his son, **Drug**, is working for International Harvester in Portland, Ore. The Ackleys also have two married daughters.

GEORGE MINTZ, who was manager at Schweitzer's Elizabeth, N.J., cigaret paper mill, has been appointed General Manager of the newly acquired Smith Paper Division of Peter J. Schweitzer, Inc., consisting of the five cigaret and condensing paper mills in and near Lee, Mass., formerly the Smith Paper Co. He succeeds **Walter Tatum**, who has returned to Brown & Williamson Tobacco Co., Louisville, Ky., formerly owners of the Smith mills.

PAUL C. BALDWIN, who has been one of the youngest men in the industry to attain Mill Manager rank, continues in that position at the big Scott Paper Co. mill in Chester, Pa., while now taking on additional duties as assistant to the General Manager of all Paper Mills of the company, **H. F. Dunning**. Mr. Baldwin, who joined Scott in 1940, three years later became Paper Mill Superintendent at Chester, while in his 20's, and became Mgr. in 1947.



Marvin Jones Resigns



Marvin C. Jones (right) has resigned as mill manager of the kraft containerboard mill of Weyerhaeuser Timber Co. at Springfield, Ore., for personal reasons, but he plans to maintain residence at 1655 Skyline Boulevard, Eugene, Ore., three miles from Springfield. He and Mrs. Jones are vacationing in California and Arizona, after which he will decide future plans. Their daughter, **Miriam**, is attending the University of Oregon in Eugene.

Mr. Jones had been director of purchasing and engineering at Michigan Carton Co., Battle Creek, Mich., when he joined Weyerhaeuser in November, 1948, and was in charge at Springfield through final construction phases and successful start-up in August, 1949. A chemical engineering grad of Michigan, 1925, Mr. Jones joined Michigan Carton two years later as chief chemist, working up to director of engineering and purchasing in 1934. He helped direct construction and startup of a new 250-ton carton board mill addition at Battle Creek in 1947-48.

C. L. REYNOLDS was appointed control manager for Union Bag and Paper Corp., announced **Leonard J. Doyle**, vice president. Mr. Reynolds succeeds **W. A. West**, who is resigning from the company. Mr. Reynolds joined Union Bag in 1940. He was born in Newark, N. J., and is a graduate of Notre Dame and Harvard School of Business Administration.

JAMES T. SHEEHY, resident manager of the Hoquiam, Wash., mill, and **RUSSELL F. ERICKSON**, resident manager of the Fernandina, Fla., mill, have been elected vice presidents of Rayonier Incorporated.

IRVING T. RAU, secretary-treasurer of St. Helens Pulp & Paper Co., St. Helens, Ore., was chosen president of the industrial organization, Columbia Empire Industries, for 1949, succeeding **P. E. HODEL**, president of Huntington Rubber Mills, Portland.

OTTO HARTWIG, general safety director, Crown Zellerbach Corp., Portland headquarters, has been appointed to the Governor of Oregon's industrial safety committee.

LEO C. MONAHAN has been named sales manager for Woodfiber (insulating board) Division, Simpson Logging Co., Shelton, Wash. Mr. Monahan was assistant sales manager for Insulite Division, M & O Paper Co., Minneapolis. He succeeds **A. L. CROZIER**, promoted to general assistant sales manager for Simpson.

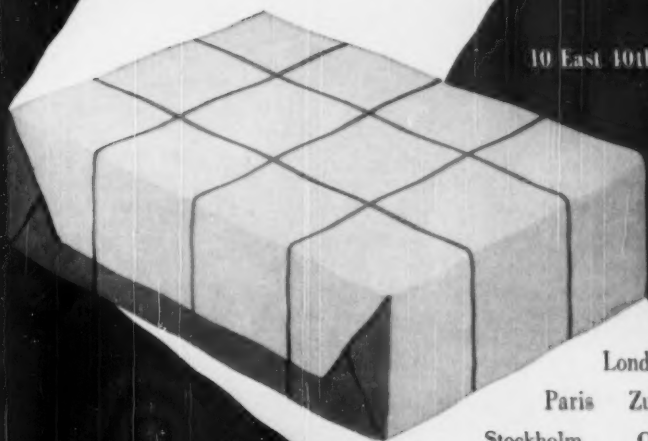
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Personals

News About Industry "Affiliates" The Equipment and Supply Men

STANFORD G. BLANKINSHIP, JR., son of Mr. and Mrs. Blankinship of Armonk, N. Y., appears headed for the life of a benedict. Putting the facts in proper order as did the society pages of the New York dailies: Mr. and Mrs. **JOHN F. McPHERSON**, Scarborough on Hudson, announced the engagement of their daughter, Miss Joan McPherson, to the son of the executive vice president of Perkins-Goodwin Co., New York, and widely known in this industry. The father of young Mr. Blankinship's fiancée is vice president of the George A. Fuller Co. and himself no stranger to the pulp and paper industry. Miss McPherson is a graduate of Scarborough School and Skidmore. Mr. Blankinship graduated from Tabor Academy and Bowdoin, and served with the Navy in the Aleutians from 1941 to 1945. He is now with Shell Oil.

LEONARD ROCKSTROM, formerly director of engineering for F. X. Hooper Co. Inc., Glenarm, Md., has joined Cameron Machine Co., Brooklyn, N.Y., as chief engineer. He will be responsible for all new design and development work on slitting and rewinding machinery. Prior to his association with the Hooper Co., Mr. Rockstrom was a partner in the firm of Briglia and Rockstrom, engaged in research and development work. He is a graduate of New York University.

H. C. OSBURN, sales and service engineer, now represents R. T. Vanderbilt Co., Inc., New York, on the Pacific Coast with new offices in the Terminal Sales Building at Portland, Ore. Mr. Osburn was previously at the firm's Norwalk, Conn., operations, having worked in the laboratory on papermill problems and as a service engineer.

THOMAS B. SCARFONE, sales engineer and representative of Pacific Coast Supply Co., Portland, Ore., has his days numbered for bachelorhood. His engagement to Miss Betty L. Spencer, daughter of Mr. and Mrs. L. P. Spencer of Portland, has been announced and the wedding is planned for early summer.

RONALD W. MURPHY of 1248 34th Ave., San Francisco, who formerly was in the food brokerage business there, has been appointed West Coast representative of the Industrial sales division of A. E. Staley Mfg. Co., Decatur, Ill., for corn and soybean products.

Heppenstall Retires

S. B. Heppenstall, Sr., chairman of the board of Heppenstall Co., Pittsburgh, has retired after 51 years in this steel forgings plant. His nephew, **R. B. Heppenstall**, president, said the board chairmanship would remain vacant for the immediate future.

Soderberg Elected President



Fred A. Soderberg (left) General Dye-stuffs Corp., New York, was elected president of the Commercial Chemical Development Association at its recent annual meeting. The CCDA is one of the most important and vital industrial groups in the world, and the high honor comes to Mr. Soderberg as he completes with competency the presidency of the Superintendent Affiliates where he inaugurated several new projects whose progress will be outlined at the Superintendents annual in Chicago this June. Serving with him as CCDA officers are **V. E. Wellman**, Calco Chemical Division of American Cyanamid, vice president; **C. W. Walton**, Minnesota Mining and Manufacturing, treasurer; **G. O. Cragwell**, Charles Pfizer Co., Inc., executive secretary.

Hooker Promotes Edwards
John P. Edwards has been named supervisor of product application by the Hooker Electrochemical Co., Niagara Falls, N.Y. Greater emphasis is being placed on the development of uses for new products and new applications of old products. In his new capacity Mr. Edwards, U. of Minnesota '40, will coordinate activities of research and sales in this direction.

Hooker Promotes Edwards

ROBERT P. LOGAN, new field representative and liaison man for the National Council for Stream Improvement with Pacific Northwest pulp and paper mills, has established himself at 1410 Southeast 28th Ave., Portland, Ore. For a short time after moving west he lived in a Seattle apartment house, but decided later to make his headquarters in Portland.

W. J. ZIMMERMAN of Toronto and **T. A. BURTON** of St. Catharines, Ont., have been appointed construction engineers and designers for the proposed Edmonton (Alberta) Pulp & Paper Mills, to make newsprint and sponsored by R. O. Sweezy, Montreal financier.

A NEW DOCUMENTARY FILM, "THE DORR WAY," had a premiere in New York before technical audiences. The Dorr Company, 570 Lexington, New York 23, N.Y., says it is available for meetings of pulp and paper industry associations and other groups. This film opens with a view showing Dr. John Van Nostrand Dorr, founder and Chairman of Dorr's Board of Directors, standing before a 4-foot globe, upon which pins denote locations of Dorr installations throughout the world.



DR. DONALD W. LIGHT (left) newly appointed Director of Research for Angier Corp., Framingham, Mass., manufacturers of industrial packaging papers, was formerly with Ludlow Mfg. Co.

FRED R. GEIB (right), now is National Technical Representative of Dowicide Div., Dow Chemical Co.; previously he handled Midwestern area only. Mr. Geib will move to Midland, Mich., from Chicago.

Lockport Felt Expansion; New Benefits for Employees

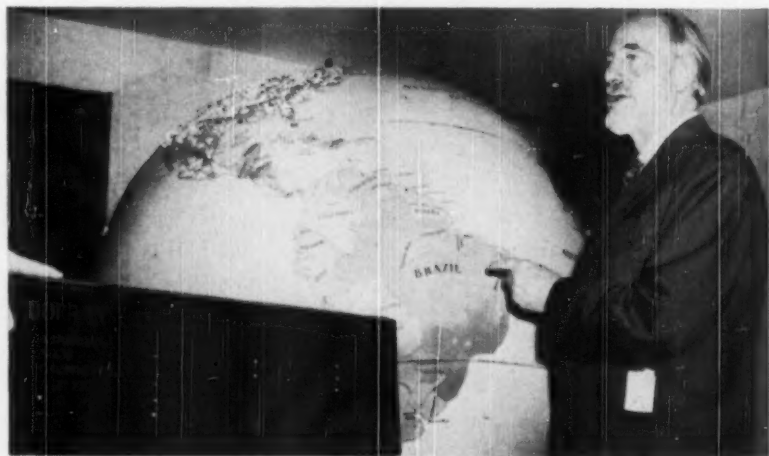
Despite increased costs and an extensive remodeling program at its plant in Newfane, N. Y., Lockport Felt Co. paid a bonus to employees and assumed employee costs of the New York disability benefits law hospitalization plans, it was recently announced by Raymond J. Lee, executive vice president.

Lockport Felt has spent some \$350,000 on machinery, improvements and repairs in the past three years and, in 1950, will install a new \$25,000 boiler in a newly remodeled boiler room and a 480-inch loom costing \$26,000.

Stein, Hall Consolidation

Morris Rosenthal, president of Stein, Hall & Co., Inc., announces that due to serious illness of J. Rexford Adams, vice president and manager of the dry adhesive department, it will be many months before he will again be on active service. Therefore, the liquid and dry adhesives departments have been consolidated under Roger Shoals.

R. E. KILTY, secretary-treasurer of Conn. Valley Division of the Superintendents, with the officers and activities committee, had **B. E. PREVOST**, Emerson Mfg. Co., and **LEON SMITH**, sales engineer, Downing Mfg. Co., Downing, Pa., on a dinner program recently at Roger Smith Hotel, Holyoke, Mass.





TREES OF MERCY FROM OUT OF THE SKY

Anywhere in the world where persons are cut off from normal sources of supply . . . food, fuel, medicine, and other necessities can be brought to them by air transport—even though landing facilities do not exist. The answer, of course, is the cargo parachute.

These life-preserving 'chutes usually are made, wholly or in part, from high-strength viscose rayon yarn, much the same kind of yarn that improves the wearing qualities of automobile and truck tires. And what is the yarn made from? Trees!

In fact, more than eighty per cent of all viscose rayon and acetate yarns produced in this country are made from highly purified cellulose derived by chemical processes from wood.

Rayonier supplies a large part of the highly purified wood cellulose used by domestic textile manufacturers for making viscose rayon and acetate yarns and staple fiber for wearing apparel, tire cord, draperies, rugs, and many other textile products. We also supply large quantities of purified wood cellulose for the manufacture of cellophane and other transparent packaging materials.

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ECA's EUROPEAN TOURING PULP AND PAPER men at American Cyanamid Co.'s Stamford, Conn., laboratory. They have been visiting numerous mills from Coast to Coast during recent several weeks.

(Left to Right) Front row—HUGH MUNRO ARCHIBALD, Faversham, Kent, England, Manager, Bowater's Sittingbourne mill. TAMMO RIENKO ANTON BEUKEMA, Hoogeveen, Holland, Director, N. V. Cartonfabriek Beukema & Co. REGINALD STAFFORD JOBIN, Warlingham, Surrey, England, British Paper & Board Industry Research Assn. HANS ALBERT SALZER, Vienna, supervisor and part owner, Matthaus Salzer's Sohne, St. Polten. ANDRE-MARIE-MARCEL-LEON THIRY, Technical Director, Thiry & Co., Huy, Belgium. EDOUARD BLONDEEL, Brussels, Belgium, General Director, Ed. Haseldonckx General Paper Co. PAUL van der BEUREN, Brussels, Director of Vanderbeuren Export. RUDOLF SCHEPP, Redenfelden Post Raublin, Germany, Director, Aschaffenburg Zellstoffwerke. A. G. T. TROMP, Director and Technical Manager, "Gelderland" Paper Mill, Nijmegen, Netherlands.

Second row—L. A. BROWN, of ECA. Z. CAMPRINI, of Italy. ANTONIO ANFOSSI, Pinerolo, Italy, Technical Manager, Poccardi Pinerolo Foundry. KRISTIAN KLARFELT, Kragero, Norway, Chief Engineer, A/S Thunes mek. Vaerksted, Oslo. KARL SCHMIDT, Heidenheim, Brenz, Germany, Chief Engineer, J. M. Voith Machinery Mfg. Co., Heidenheim. WALTER BRECHT, Darmstadt, Germany, Director, Institute of Paper Technology. GILBERT VON GIANNELLA, Murzsteg, Austria, Secretary, OEEC Pulp and Paper Committee. NECATI BASKURT, Ankara, Turkey, Supt., Cellulose Industries Establishment of Sumerbank, Izmit, Turkey. WILHELM GEFFELER, Hanover, Germany, Chairman, Chemical Paper & Pottery Workers, Hanover.

Third row—WERNER LANZ, Bale, Switzerland, Swiss representative on

OEEC. FREDERIK BLOEMENDAAL, Heemstede, Holland, Secretary, Assn. of Paper & Paper Converting Industry. GUGLIELMO TURINI, Rome, Director General, Society Cartiere Meridionali di Rome. N. P. NILSSON, representing A. B. Karlstads Mekanska Werkstad at Karlstad, Sweden. ERWIN SCHLAEPEER, St. Gall, Switzerland, Chief Engineer, Paper Cham., Cham/Zug. LAURITZ CHRISTIAN CARLSEN, Denmark, Director, United Paper Mills, Copenhagen. EUGEN NAN-NESTAD HOLTAN, Oslo, Norway, Secretary, Forestry and Forest Industries Research Organization. MAX ZIEGLER, Balsthal, Switzerland, General Works Engineer, Cellulose Factory Attisholz, A. G. URS SEIBER, Attisholz, Switzerland, Manager Director, Cellulose Factory, Attisholz, A. G. Fourth row—WALTER P. COPPINGER, ECA official guiding the group. A. WHEWALL, District Official, National Union of Printing, Bookbinding and Paper Workers. EMIEL DESIRE SOFIA DeBONDT, Borgerhout, Belgium, Secretary for Christian International Federation and for Belgian Christian Organization for Paper and Graphic Workers. GERARD EMILE ESCARFAIL, Isere, France, General Manager, Moulin-Vieux. BERNARD MARIE JOANNES BONJEAN, Grenoble, France, Chairman, Board of Neyret-Beylier Foundries. JEAN-PIERRE LOUIS, Paris, Official of Federation des Syndicats. JEAN PIERRE JULES MARTIN, Paris, Manager, Martin Brothers Co., paper products. A. TARQUINIO, Representative of Free Labor.

Back row—SAM MATHEWS, of American Cyanamid (behind woman); PRESCOTT FULLER, also American Cyanamid; NARD JONES, of Putz & Papez; HENRY J. PERRY, consultant and technical writer, N. Y. Tribune reporter; COL. F. M. MOFFATT, American Cyanamid, New York Office, and WILBUR MILLER, American Cyanamid, Washington, D. C. Standing (l. to r.) CHARLES MORRIS, H. HARTJENS, L. H. WILSON, J. C. BARTHEL, W. M. THOMAS and DR. E. H. NORTHEY, all of American Cyanamid.

Tour of United States By 34 European Experts

When the Pulp and Paper Productivity Team (34 technical and management experts from 12 Marshall Plan countries) arrived in February and made its first stop at the Stamford, Conn., laboratory of American Cyanamid Co., members were fresh and eager. A few days in New York kept them interested and diverted. Then came Paper Week which, it was explained to them, consisted of two parallel conventions.

"It is that each of us will choose one or the other, no?" enquired Jean-Pierre Louis, official of the Federation des Syndicats, producers of paper products in Paris, France. "You will each of you attend both, yes!" explained Walter P. Coppinger, who with Lee A. Brown was guiding them. Both are from Washington office of ECA.

By now these visitors have probably decided Paper Week was just a warm-up. They have seen so many pulp and paper mills, equipment plants and so many American pulp and paper makers and others, they would probably have to consult their notebooks to keep their impressions in the right categories.

They recently had a ten-day stay in Wis-

consin, quartered at the Conway hotel, and there toured the Institute of Paper Chemistry, Marathon, Rhineland and Consolidated in the Wisconsin River valley and then virtually all the mills on the Fox River and plants like Appleton Machine Co.

This was after a group "team" had toured many Southern mills. A "team" also went to the Pacific Coast, where Crown Zellerbach at Camas, Weyerhaeuser and Longview Fibre mills at Longview were included in tours. Much earlier on their tour they visited Hercules Powder Co.'s Experiment Station near Wilmington, Del. They left Appleton for Washington, D. C., April 8, and part of the group visited N. Y. State College of Forestry April 12.

Few of them would say as to their specific interest. Most would throw up their hands in mock frustration and say, "Everything." Not a few assumed caution on what they hoped to export to the U. S., as if they realized that the ECA was not accepted with unanimity. But by putting the central question to several, it was plain that the interest of the group lay in a few overall categories; there were those who wanted to find out which of their lines were most exportable, or discover a market unrealized by the domestic mill men.

Sandy Hill Machines for New Buenos Aires Mill

Largest and fastest tissue machine in South America went into production at the Bernal mill of LaPapelera Argentina, S. A., on the outskirts of Buenos Aires recently. The entire installation was designed and built by The Sandy Hill Iron & Brass Works of Hudson Falls, N. Y. LaPapelera is largest manufacturer of paper in Argentina.

Two Bird screens, a 156-inch Four-drinier wire, Foxboro controls, Ross Engineering air system over the Yankee, and Cameron winder are among the features in connection with the tissue machine.

A cylinder machine for smooth finished board at high speed, with a drying section including a 12-ft. Yankee dryer, is near completion in same room with the tissue machine.

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STREAM POLLUTION ABATEMENT? FIBRE RECOVERY?



Check the CYCLATOR®

Here's what we've done at the River Raisin Paper Company plant in Monroe, Michigan. A CYCLATOR is treating white water from two cylinder machines producing liner board. B.O.D. reduction averages 52.4%!* Suspended solids are reduced 99.0%!* In addition to these positive stream pollution abatement steps, fibre losses have been reduced to 0.1%* by reusing the underflow which has a consistency as high as 2.5%.* The value of the recovered fibres defrays a high percentage of the operating costs. If white water, stream pollution abatement and fibre recovery are among *your* problems, put them up to INFILCO! Send today for our Bulletins No. W850, 23-409, and other pertinent data.

A FEW INFILCO WHITE WATER TREATMENT PLANTS

CAROLINA PAPER BOARD CO.	Charlotte, N. C.
CONTINENTAL DIAMOND FIBRE CO.	Bridgeport, Pa.
FEDERAL PAPER BOARD CO.	Reading, Pa.
W. C. HAMILTON & SONS CO.	Miquon, Pa.
NEW YORK & PENNSYLVANIA CO.	Johnsonburg, Pa.
RIVER RAISIN PAPER CO.	Monroe, Mich.
TAYLOR FIBRE CO.	Berzwood, Pa.
AMERICAN DEFRIBRATOR CO.	Mexico City, Mex.

*Michigan Stream Control Commission Report, March, 1949



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WORLD'S LEADING MANUFACTURERS OF WATER CONDITIONING AND WASTE TREATING EQUIPMENT

SULFITE LIQUOR USES

VARIOUS PROPOSALS ARE EVALUATED

By J. Richter Salvesen

Director of Central Research, Marathon Corp., Rothschild, Wis.

The subject of sulfite waste liquor utilization is presently one in which there is a great deal of interest throughout the country and primarily because it entails the problem of stream pollution for the individual mills. Roughly speaking, sulfite liquor consists of 60% calcium lignosulfonate and about 40% sugars and other carbohydrate compounds. Since the yield of sulfite pulp is usually between 40 and 50%, based on the dry barked wood, it follows that the organic constituents of sulfite waste liquor represent about half of the weight of the wood.

To illustrate the liquor solids and volumes we are considering, here are two charts—one for a 100-ton sulfite mill; the other giving total amounts for the entire U. S. sulfite industry:

From 100 Ton-Day Pulp Mill

Amounts of sulfite waste liquor per day:	
9% solids	330,000 gals.
collectable (85% of above)	280,000 gals.
Tons solids in evap. liquor	105 tons
Equivalent 50,000 lb. cars	4.3 cars

Total in U. S. in 1948

Amounts per day:	
Pulp produced	9,200 tons
9% waste liquor solids	
collectable	25,000,000 gals.
Solids in evap. liquor	9,660 tons
Equiv. 50,000 lb. cars	386 cars

Marathon Corp., in Rothschild, has for some 20 years engaged in research and development work for establishing uses for sulfite waste liquor. The Marathon Howard process consists in first precipitating calcium sulfite from the waste liquor with lime; and in the second step, precipitating the main part of the lignin component from the liquor as basic calcium lignosulfonate. The calcium sulfite sludge resulting from precipitation is returned to the sulfite mill as a component in the cooking liquor make-up.

Lignosulfonates

Marathon has for many years carried out extensive research for utilizing its precipitated lignin as raw material for making a variety of lignosulfonate compounds and pure, crystalline organic products, such as vanillin. Around 500,000 pounds constitutes about 50% of the vanillin flavor market. This shows how such a development for utilizing sulfite waste liquor may have very limited significance in relation to the large amounts of raw material available in this country. On lignin basis, the yield of vanillin is actually quite low, amounting to between 5 and 7%. The economy of the process requires a further utilization of the lignin.

We have developed a series of different products, one of which is a boiler compound to reduce or prevent scale formation in low pressure tubes. Another by-product is a dispersing agent which has highly important and unique surface-active properties. This has found a rather substantial market for preparing deflocculated aqueous carbon black slurries, such as are now used in producing rubber from synthetic rubber latex. Other lignosulfonates prepared from the basic calcium lignosulfonate have also been established as having useful

Salvesen Comments On Other Projects and Problems



Commenting on this very thorough review of sulfite waste liquor disposal endeavors of the industry, J. Richter Salvesen (left) author, told *PULP & PAPER* that the magnesium base sulfite cooking process "presently being worked out" by Weyerhaeuser Timber Co., in Longview, Wash., is another important project to be considered.

"But I did not enter into it here because I had no direct information or experience with it and separate reports are now available on it (*PULP & PAPER* issues of Oct. 1949 and Nov. 1949 carry the most complete and recent reports on it).

"Nor did I go into the problems regarding the burning of concentrated liquor or the fly ash collection (in connection with the Rosenblad system)," he said. "These problems were considered to be a subject for special publication by those who have had direct experience with them. I feel the two problems, while in need of considerable attention, are nevertheless sure to find a satisfactory practical solution."

surface-active properties and are finding substantial markets in such industries as cement manufacture, dyestuffs, and oil well drilling.

One of the largest potential market outlets for lignosulfonates present in sight is in the tanning field. In the leather making industry there are consumed daily 400 tons of tanning material, calculated as pure tannin, and there is now an increasing interest for replacing substantial amounts of the vegetable tanning materials with suitable lignosulfonates. This interest is brought about partly because our country is dependent on import for the largest part of the vegetable tanning materials; partly because the lignosulfonates should present a lower priced tanning material. This is today highly significant for the tanning industry, particularly for the sole leather tanners since they are experiencing an increasingly keen competition with rubber soling materials. The whole sulfite waste liquor has been used as a component in various tanning processes for many years, but it now seems evident that this crude material will have limited possibilities for replacing vegetable tans other than as filler compounds. The tanners are looking for lignin products with fairly high degree of purity, and particularly absence of iron, which is highly detrimental in the tanning processes.

Alcohol

The carbohydrate component of sulfite waste liquor is also looked on as a potentially useful raw material. The fermentation of the sugars to alcohol is a well established process which has been used extensively in Europe for the last 30 to 40 years. In this country there is only one sulfite mill engaged in ethanol fermentation of sulfite waste liquor. It is unlikely that

the sulfite waste liquor sugars will be an attractive raw material for alcohol production in this country because other sugar sources, such as surplus grain and corn, low priced molasses, and also alcohol produced synthetically from natural gas would seem to be far more economical. The main handicap which sulfite waste liquor sugars have for alcohol production consists in the low concentration of the sugars to start with, namely around 2%. This requires considerable amounts of steam to distill off the resulting alcohol, and large fermentation vats and other installations.

The Yeast Process

Such drawbacks to utilization of the sulfite waste liquor sugars are not present in another approach for their utilization, namely in the yeast production process. Bakers' yeast has been produced from sulfite waste liquor for some 20 years in Sweden and Finland, and is also being produced in one Canadian mill. In our country we have recently started our first installation at Rhinelander, Wis. The type of yeast is the so-called Torulopsis variety, which is capable of consuming or utilizing the pentoses as well as hexoses. The use of the dilute sugar solutions is here less objectionable because the yeast grown on the liquor is separated through centrifuging and thus concentrated by mechanical means before the yeast is finally dried. The process seems feasible technically, and results in a product which is desirable for appreciable market outlets. The plant is being operated partly to establish the technical soundness of the process, the cost of operation, the market volume for the quality of the product produced, and, finally, to find out the extent to which stream pollution from sulfite waste liquor can be reduced by an efficient operation. It is my personal opinion that the process is of considerable interest as a means of utilizing components of the waste liquor which otherwise would be the largest contributor to stream pollution. It would however, seem obvious that the number of mills that could find a suitable market for yeast obtainable from the sulfite waste liquor is relatively limited. I believe that the most optimistic outlook would estimate no more than 10% of the sulfite waste liquor could be utilized in this manner.

Evaporation and Burning for Energy

The most generally applicable procedure for sulfite waste liquor utilization is evaporation and burning for recovery of heat value. The total heat value should be nearly the same for the manufacture of a ton of sulfite as well as for a ton of sulfite pulp.

There are several very real difficulties connected with economic recovery of fuel value from sulfite waste liquor. The evaporation of the large amount of water involved is a sizeable undertaking, even under favorable conditions. Moreover, with calcium base sulfite waste liquor the conventional evaporation process is rendered quite inefficient through serious scale formation on the heating surfaces; a problem which has been the major one during the almost 70 years which this process has been under consideration. In

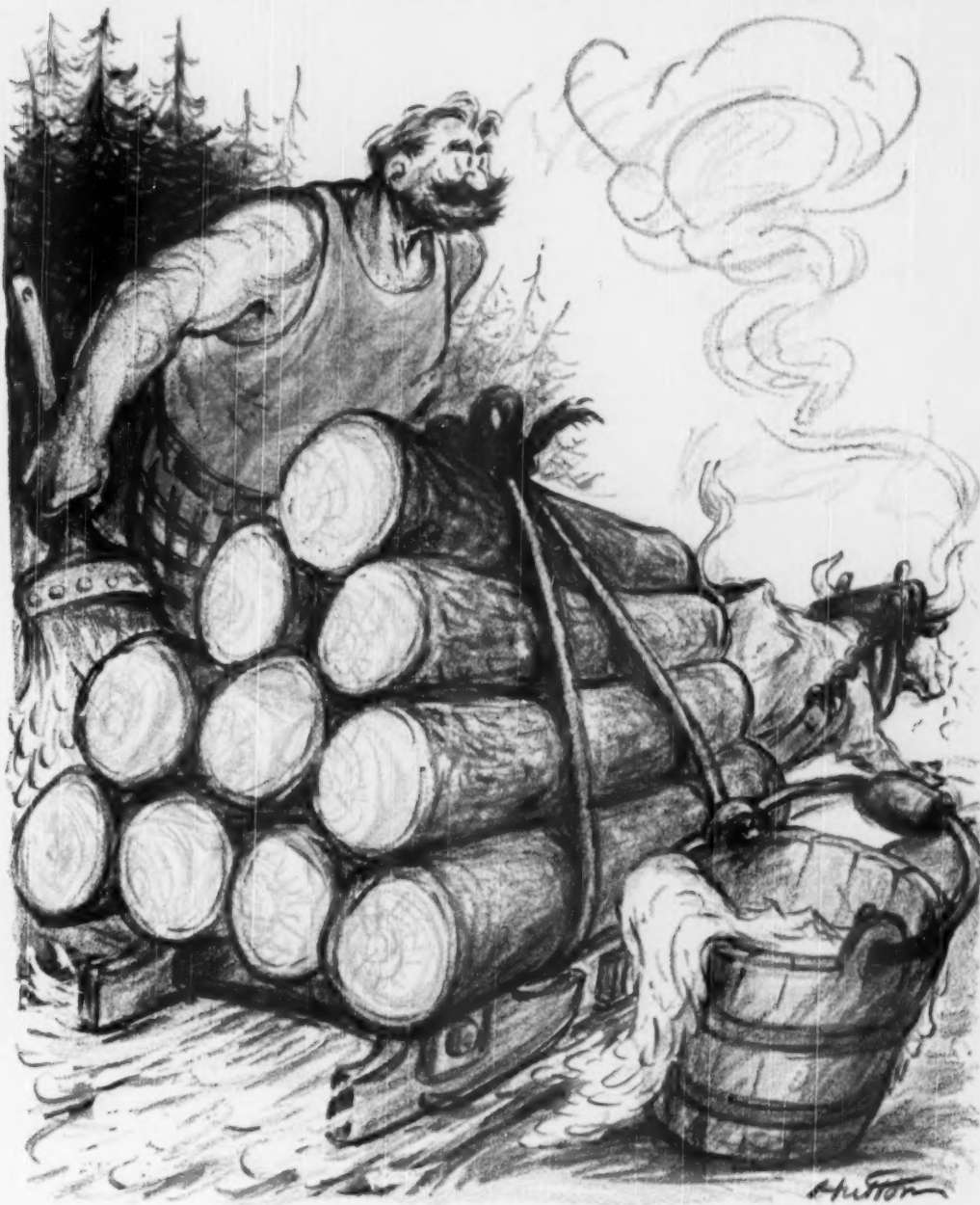
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BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP



Babe, the blue ox, hated hot weather and refused to haul logs in summer. So Paul Bunyan whitewashed Skid Road—and Babe, thinking the whitewash was snow, hauled willingly and with great vigor.

A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-second of a series—will be sent on request. It will contain no advertising.

1941 a procedure was developed in Sweden which promises to eliminate completely the difficulties due to scaling of calcium base sulfite waste liquor. This procedure, called the switching or channel exchange method, consists in interchanging periodically the flow of liquor and steam in the two channels or groups of channels in heat exchanger. Thus the scale formed in the channel enclosing the liquor flow during one period is dissolved by the steam condensate passing through the same channel during the subsequent period. The changing over from steam to liquor flow is designed to be carried out quickly and conveniently, usually every eight hours.

Numerous tests have demonstrated that this switching system indeed is a practical means of eliminating the scaling problem and that the system represents a large step ahead toward economic utilization of the heat value present in sulfite waste liquor. There is, however, another factor which usually has been neglected or under-emphasized. This is the problem of feeding into the evaporator system a sulfite waste liquor with reasonably high solids content. In order to make comparison with the kraft black liquor recovery process, we know that the dried solids content of the black liquor going to recovery is between 15 and 20% solids. In a kraft mill very elaborate precautions and technical designs are devoted to minimize any dilution of the spent cooking liquor. This is obviously aimed at avoiding unnecessary evaporation of water as well as loss of inorganic chemicals.

In most sulfite mills today the blow pit operation is designed primarily for an efficient washing of the waste liquor out of the pulp with complete disregard to the concentration at which the waste liquor drains off. It is the experience at many pulp mills that even with careful blow pit washing operations it is impossible to obtain higher than an average of 9% solids in the liquor draining off, and then this concentration can only be maintained for recovery of 85% of the dissolved solids. Thus the 15% not collected in that concentration is too dilute for any type of processing.

It takes only simple calculations to ascertain that a system of evaporating sulfite waste liquor with a solids content of 9%, even with the best of heat transfer, requires addition of heat when the concentrated solids are burned. Expressed in other words, if the waste liquor concentration is not higher than 9%, then the heat requirement for the evaporation exceeds the heat recovered from the burning of the solids. For economic evaporation and burning of sulfite waste liquor to give positive heat return in amounts which will pay for the cost of operation and cost of equipment, high concentration of solids in the waste liquor is of utmost importance.

Reports from many Swedish mills where the process is successfully operated, show that there the concentration of

A "DEPRESSION - PROOF" SOLUTION IS DISCUSSED IN THIS FIRST PUBLICATION OF THIS APPRAISAL

Here is the first publication of an address which was made before the Lake States technical section in Wausau, Wis., recently by J. Richter Salvesen, director of Central Research, Marathon Corp., in which he reviews and appraises various proposed solutions of sulfite mill effluent problems. As one who has been closely in touch with developments in this field for years, he is eminently qualified to discuss these suggested remedies and *PULP & PAPER* is proud to publish for the time his interesting comments.

First of all he points out that Marathon's own local solutions are very limited in their application because of limited markets. He points out similar objections to other by-products—other lignosulfonates; alcohol and yeast.

Finally, he makes a very interesting appraisal of the Rosenblad switch system type of evaporator which was described in an exclusive, illustrated article in *PULP & PAPER* in our March issue, page 26. This is the system which has been tested in a pilot plant at Appleton, Wis., installed by General American Transportation Corp. (Process Equipment Division), and of great interest, especially to the Wisconsin sulfite industry.

The author does not go into the sequel problems of burning in this article, but it is significant that he calls the evaporation-and-burning idea (of which there are several variations) a "depression-proof" solution because its products are used within the mill itself.

the sulfite waste liquor collected is somewhere around 15%. Such conditions, then, approach those for black liquor evaporation and burning and the process will show economic gains in form of substantial amounts of heat recovered above that required to evaporate the water from the sulfite waste liquor. It would therefore seem definitely warranted to put considerable effort into establishing conditions whereby liquor with high solids content can be obtained.

Conclusions

As a conclusion to this brief review of the various possibilities for sulfite waste liquor utilization, it can be said that the development of processes and markets for utilizing the lignosulfonate as well as the

carbohydrate components in the sulfite waste liquor will continue to offer intriguing possibilities for premium products, but markets of very limited size compared with the total waste liquor present from the sulfite pulping industry.

The latest technical developments in non-scaling evaporation equipment, combined with research and engineering efforts toward making available sulfite waste liquor with high solids content, promise a procedure for utilization of the waste liquor with substantial heat recovery. This type of utilization is desirable also from the standpoint that the process is actually what might be termed "depression-proof" in that it finds a ready market for its accomplishments within the mill itself.

New Paper School's Laboratories Dedicated

New Paper Technology Laboratories of Department of Chemistry at Western Michigan College, Kalamazoo, Mich., are dedicated in ceremonies April 6, attended by many equipment men and industry leaders. A long list of equipment and supplies were given by various equipment firms for this latest addition to colleges and universities which are offering a pulp and paper course to students.



IN PACIFIC COAST INDUSTRY NEWS (L. to R.): W. J. SHELTON, Supt. of Pulp & Paper Mfg., Longview Fibre Co., Longview, Wash., is Chairman of the Governing Board for employees' Recreation Association to foster athletic and social activities. (Membership dues are \$1 a year, and the company matches every dollar paid by employees.)

ROBERT P. LOGAN, new Resident Engineer for National Council for Stream Improvement in the Pacific Northwest, presently residing at Seattle, but uncertain whether to permanently headquarter there or in Portland, Ore. His appointment grew out of a meeting in Portland last December, chairmanned by Howard Morgan of Weyerhaeuser Timber Co. Mr. Logan will collect all data possible on stream conditions and waste discharges of Northwest mills.

WILLIAM K. STAMETS, JR., Consulting Mechanical Engineer, who opened his office in the Hoge Building, in Seattle, as announced in our March issue.

H. R. ADAMS, who is the newly appointed Technical Supt. of Bleedel, Stewart & Welch, Ltd., Port Alberni, B.C.

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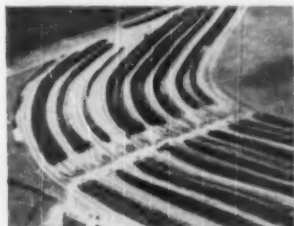
As a result, Mando is now replacing all steam cranes with swift, efficient American DiesElectrics . . . one for two. Each of the new machines handles about 30 carloads of wood on an 8-hour shift. One man runs each crane. There is no time out for steaming up, or for coal or water stops.

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All across the North American continent, north to south and east to west, the industry is improving woodlands technics and introducing large scale conservation, reforestation and mechanization.

BOWATER'S, PRICE BROS. LOGGING METHODS May Use Atomic Techniques in Forestry

Growing interest in the use of machinery for harvesting pulpwood in Eastern Canada was in evidence at the recent annual meeting of the Woodlands Section, Canadian Pulp and Paper Association. Logging engineers and foresters from several of the most progressive companies in the industry told the 700 delegates of their experiences with new mechanized equipment and described how new techniques had been applied to the solution of woods problems.

Gordon Godwin of Ontario Paper Co. and Quebec North Shore Paper Co., a pioneer in the mechanization of eastern logging, was elected as the new chairman, succeeding J. W. Paterson of the E. B. Eddy Co. J. B. Matthews, Abitibi Power & Paper Co. is the new vice-chairman.

Councillors were elected as follows: R. S. Armitage, Price Brothers & Co.; A. H. Burk, the KVP Co.; R. G. MacFarlane, Fraser Cos.; G. Harold Fisk, Pacific Mills and Powell River Co.; J. H. Merrill, Brompton Pulp & Paper Co.; F. A. Harrison, Canadian International Paper Co.; J. A. Michaud, Consolidated Paper Corp.; W. G. Phipps, Spruce Falls Power & Paper Co.; Bruce Southon, Great Lakes Paper Co., the last two being new members.

Manager of the section is W. A. E. Pepper, with W. D. Bennett, assistant manager, and B. J. McColl, mechanical engineer.

The first day's sessions, held at Montreal's Mount Royal Hotel, were devoted to research problems in the forest with a program prepared by Alexander Koroleff, director of woodlands research for the Pulp and Paper Research Institute of Canada.

In the general sessions on forest management delegates reviewed methods of assisting the industry to implement its publicly declared policy of harvesting pulpwood crops to insure perpetual yield.

Guest speakers included R. M. Fowler, president of the association and of the Newsprint Association of Canada, and Dr. L. R. Thiesmeyer, president of the



GORDON GODWIN (left), woods chief for Ontario Paper Co., Thorold, Ont., and its Quebec North Shore mill, also, is the new Chairman of Canadian Woodlands Section.

J. W. PATERSON (right) woodlands manager, The E. B. Eddy Co., Hull, Que., who presided at the recent Montreal meeting of the Woodlands Section, Canadian Pulp and Paper Association, as 1949-50 chairman.

Pulp and Paper Research Institute of Canada.

Summarizing the outlook for the industry, Mr. Fowler said that existing demands call for near-capacity operations and that, for as long as can be foreseen, the prospects are for a continuation of a high level of demand. He pointed out that the loss of overseas markets had been serious for some companies, but that the 1949 recession in the industry's largest market, the United States, was fortunately of short duration.

"Whatever the short-run fluctuations may be," said Mr. Fowler, "the long range is upward."

Atomic Techniques For Forestry

Dr. Thiesmeyer commended the sustained yield objective of the Woodlands Section and expressed the hope that this would become the basic operating policy of all Canadian companies engaged in forest industry. He discussed some of the concepts of the atom and atomic research, his former field of endeavor and pointed out some of the useful purposes for which the new tools of the atomic age may be put in the regeneration, nutrition and stimulation of tree growth.

"I predict that the increased income that may come to the forest products industries from the application of radioactive materials to forest management and forest utilization problems," said Dr. Thiesmeyer, "would more than pay the entire bill for atomic development to date. In silviculture, re-stocking, forest entomology and forest pathology, genetics and other fields there are literally thousands of new avenues that should be explored with these atomic techniques."

Woodlands Awards

Awards for meritorious work in woodlands research and operations were presented as follows: J. A. Bothwell award for forest conservation work, presented by R. S. Johnson, chief forester, Mersey Paper Co., to J. H. Merrill, woods manager, Brompton Pulp & Paper Co.; Ellwood Wilson award for the most effective industrial application of research projects instigated and carried out by the section, presented by Harold Burk, woods manager, KVP Co., to P. V. LeMay, operating manager, Marathon Paper Mills of Canada. A bronze plaque and \$100, donated by the KVP Co., was presented to Mr. LeMay for his work in connection with development and functioning of the cable yarding system employed by Marathon.

Price Brothers & Co. award, presented to A. R. McKenzie, assistant chief forester, Abitibi Power & Paper Co., by R. S. Armitage, general woodlands manager, Price Brothers; mechanization award, donated by Fraser Cos., presented by R. G. McFarlane, woods manager, Fraser Cos., to E. H. Gunter, logging superintendent, Price Brothers, for his paper on truck hauling.

Bowater's Logging Discussed

Two interesting papers were presented on Newfoundland logging, one being contributed by John O. Hemmingsen, mechanical logging superintendent, Bowater's Newfoundland Pulp and Paper Mills,

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NEWS



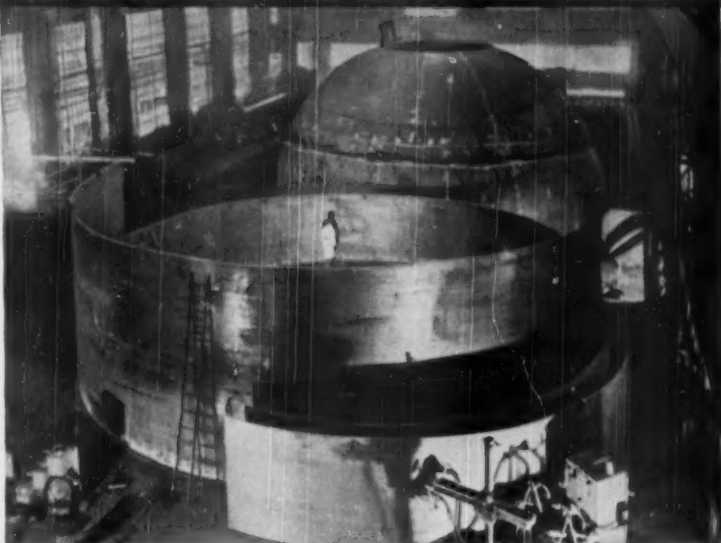
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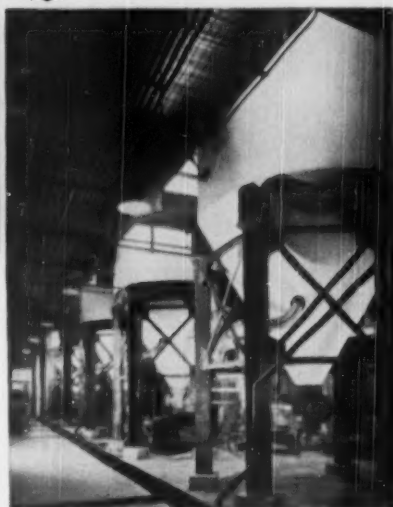
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Corner Brook, whose father, Matt Hemmingsen was a logging figure on Vancouver Island, and the other by A. H. Martin, woods manager of the same company.

Mr. Hemmingsen said that while the small size of the tree and low cubic wood content per acre limited the economic use of mechanized equipment in Newfoundland, some development was being undertaken along that line. Bowater's, he said, are experimenting with the use of mechanical aids to gather and cut logs into piles. The company is also using mechanical equipment to haul the piles of wood to the river banks. These methods are proving practical and can, when conditions are suitable, compete on a cost basis with the traditional horse and manual labor methods. Owing to the economy of the province, however, logging is at present more successfully carried out by men with bucksaws, horses and sleds. Mr. Hemmingsen predicted that when mechanical logging developments throughout the industry had been co-ordinated into basic systems the eventual success of mechanized logging would become evident.

Mr. Martin described the mobile equipment used to load ships which had been found to be the most economical way of transporting the pulpwood from bays on the coast of Newfoundland to the mill at Corner Brook. A crane with a specially designed grapple was mounted on a scow. A boom of logs was moved alongside the scow and the logs lifted from the water into steel barges. When filled, these barges, carrying 2000 cords, were towed by ocean-going rafts to the mill. (Operations of a large number of Lorain cranes by Bowater's and the logging technique discussed by Mr. Hemmingsen were described with pictures in PULP & PAPER, March 1949 issue.)

Harvesting of Pulpwood

Harvesting of pulpwood on a silvicultural basis on the Mersey Paper Co.'s limits in New Brunswick were described by R. S. Johnson, the company's chief forester. Certain trees are marked for cutting following a plan to permit the proper regeneration of future crops. Over-mature and decadent trees are removed first.

E. H. Gunter, Price Brothers & Co., Rimouski, Quebec, discussed transportation of pulpwood in winter over snow roads on sleighs to frozen streams and lakes to await the spring drive. Because the Rimouski terrain permits construction of roads that can be used in summer, Price Brothers & Co. decided last year to haul wood in summer from this district by truck. The wood may be loaded from the piles made by pulpwood cutters and then taken direct to the river in summer, whereas in winter it is necessary to haul the wood from piles to the main sleigh road and then re-load it on sleighs. Thus truck hauling eliminates two-stage hauling. Other advantages are that the trees are cut at the same time as they are being

hailed and overhead costs are thus reduced. The men may also be driven to their work by truck and hauling distances are shorter since the trucks can travel over steeper grades than is possible over iced winter roads.

Disadvantages include longer use of the capital required, higher rate of sinkage as the logs are longer in the water, but these are outweighed by the advantages, according to Mr. Gunter.

P. R. Thomas, Price Brothers & Co., described operation of the Wyssen (Swiss) cableway in the Matane district of Quebec which has a capacity of 3000 pounds and brings wood from an elevation of 1200 feet. "We think the use of Wyssen cableways is bound to increase in eastern Canada as logging operations reach the more inaccessible stands at higher levels."

B. J. McColl, mechanical engineer for the section, reviewed the application of

mechanical methods of cutting and transporting pulpwood and said that in Eastern Canada cable yarding could compete with the conventional method of skidding by horses under some operating conditions. He said cable yarding with tree lengths is potentially the best method of yarding from the standpoint of overall costs, and he expressed the opinion that as experience is gained and new equipment developed the industry's woodlands operations will become increasingly mechanized.

R. D. Collier, woodlands research associate of the Pulp and Paper Research Institute, also dealt with the problems of transporting pulpwood from steep and inaccessible slopes by gravity. A. M. Stewart, supervisor of training, Price Brothers & Co., said the old idea that good pulpwood cutters are born with a special aptitude may be discarded because organized training has proved universally effective.

C-Z SEED PLANTING TECHNIQUES

Tree planting of 1600 acres is being completed on five Oregon and Southwest Washington tree farms of the Crown Zellerbach Corp. Hand planting of 800,000 seedlings this past winter and this spring is the second step in the company's reforestation program. The first step involved use of a helicopter and seven planting crews to seed 7,000 acres.

Hand planting is being done with seedlings grown in the Cooperative Forest Industries Nursery at Nisqually, Wash., including 2-year-old Noble fir and spruce and 1-year-old Douglas fir and Monterey pine.

Inaccessible areas without seed source which planting crews can not reach easily by road have been restocked from the air. Cutover lands having adequate seed-bearing trees were treated for rodent control so the seeds shed on barren areas could germinate and grow. Tree seed used in helicopter seeding this year included Douglas fir, Noble fir, Western hemlock and Sitka spruce.

Cones Collected for Seed

An unusual and interesting addition to this season's reforestation program is the collecting of cones from the bountiful forest crop and the processing, cleaning and storing of seed in the company "Forest Seed Bank" as insurance against lean seed years of the future. Some 3000 pounds of such seed is being accumulated for this purpose, including select seed from highest quality growing sites.

The reforestation program is being carried out under George Schroeder, assistant chief forester of Crown Zellerbach Corp.

The restocking program is on lands serving pulp and paper mills of Crown Zellerbach at Camas, Wash., West Linn and Lebanon, Ore., and is one phase of the company program to attain true sustained yield for its eight Pacific North-

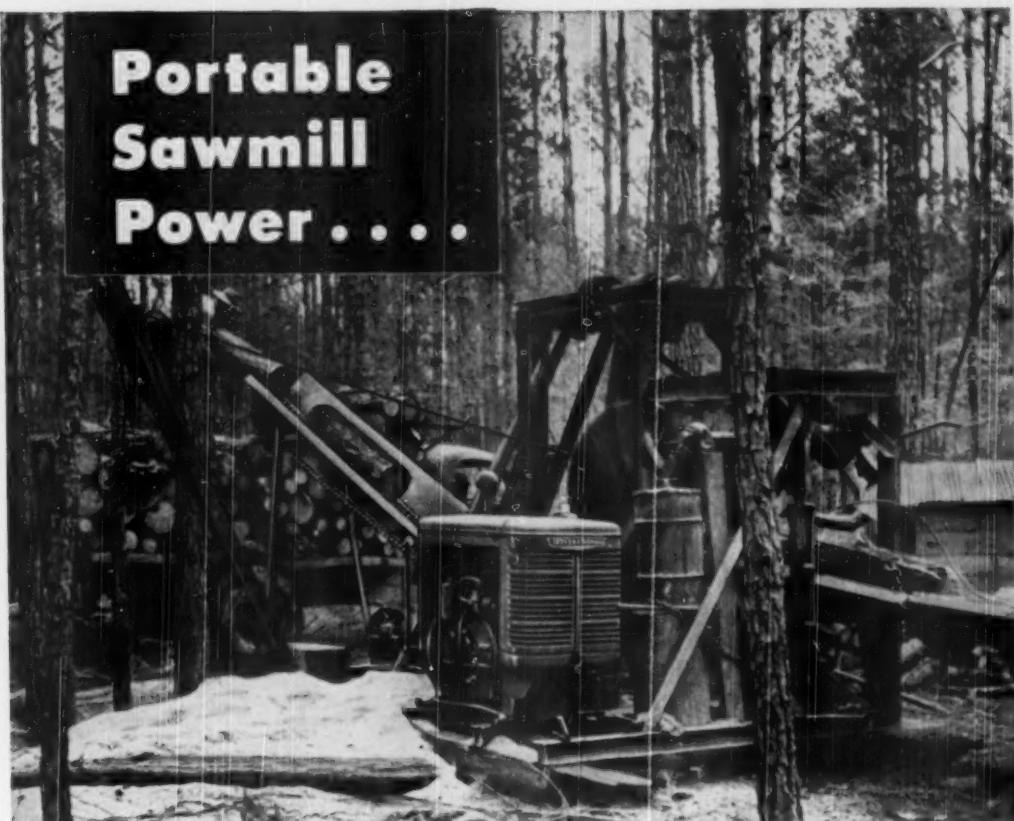


MERLE MOSAR, Forester on Clatsop (Ore.), Tree Farm of Crown Zellerbach Corp., invented this hemlock cone stripping machine, a quick and easy way to strip seed cones from branches. Machine was made in C-Z shop. The machine facilitated collection of 1,000 bushels of hemlock cones in 1949.

west tree farms, totalling more than 500,000 acres.

Favored by a bumper crop of seeds which followed an almost barren 1949 seed year, Crown Zellerbach had crews of foresters, loggers and loggers' families harvesting choice cones. Douglas fir and hemlock cones predominated. Other species were: Western red cedar, Noble fir, Silver fir, White fir and spruce. Cones were rushed to kilns and cleaning mills to be prepared for broadcasting. Certified seed was sent by air express to chemical firms for enclosing in seed pellets.

Portable Sawmill Power



from International "Packaged Powerhouses"

Portable power is a necessity here. The International U-6 Power Units used to drive these portable set-ups for the Walker, La., Division of the Gaylord Container Corp. ideally fill the bill. They deliver efficient power and are easily portable.

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locations so the trucks need not enter the woods. Because of the efficiency of the International engines, these machines add profits to pulpwood production.

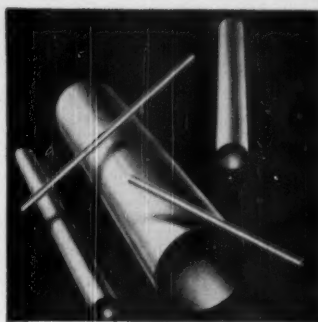
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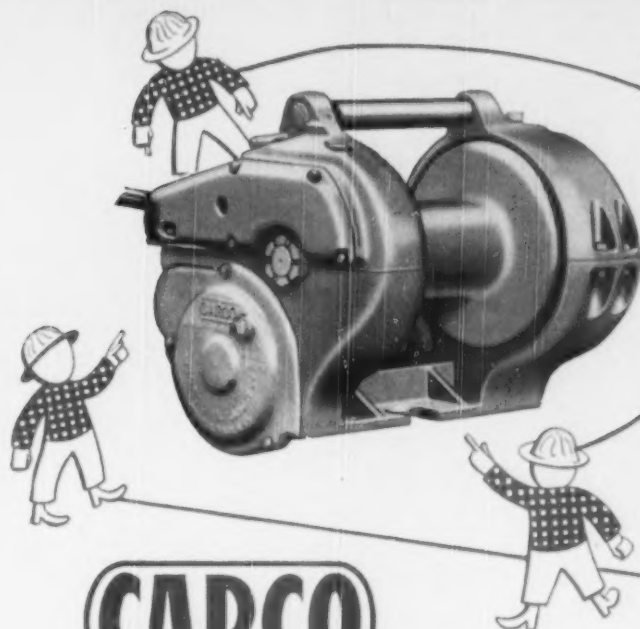


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Manufacture of Chlorine Dioxide BY THE S. H. PERSSON METHOD

By A. H. LUNDBERG

Chemical Pulp Mill Engineer



HALVAR LUNDBERG, the author, also wrote "Acid Making in Sulfite Pulp Industry" which ran as series of articles in PULP & PAPER exclusively over a period of two years and draw wide international attention. Now published in book form (\$6), is used as text in schools.

(U. S. Patent No. 2376935 and Corresponding Canadian Patent No. 438316)

It has been known for a long time that chlorine dioxide possesses excellent characteristics as a bleaching agent for cellulose materials. It reacts very readily with lignin but the cellulose is very little affected even at high concentrations and temperatures. This property is of special interest in the bleaching of wood pulps as a very high whiteness can be obtained without any appreciable degradation of the cellulose.

Chlorine dioxide, ClO_2 , is at room temperature an orange-yellow gas with a smell reminding of nitrogen tetra-oxide. It can when using utmost care be compressed to a liquid through cooling but is in that state extremely explosive. It is also explosive as a gas especially in the presence of organic substances and under light. When exploding the chlorine dioxide divides into chlorine, oxygen and chlorine heptoxide. Chlorine dioxide is soluble in water and in certain organic solvents such as glacial acetic and carbon tetrachloride. These solutions when kept in a dark room are quite stable. The risk of explosion of the gas is lowered by dilution with air, carbon dioxide, nitrogen and other indifferent gases. Five to ten per cent gas mixtures are within quite wide temperature limits explosion free as long as they are not coming in contact with organic substances able to be oxidized. At temperatures under 20°C it is found that gas mixtures with as high as 30 per cent ClO_2 can be handled without risk.

Due to the difficulties and explosion hazards usually connected with the older processes, however, chlorine dioxide has not come into use in the cellulose industry as a bleaching material until the last few years. Because chlorine dioxide can only be stored and transported safely in the form of a very dilute aqueous solution the manufacture of this chemical evident-

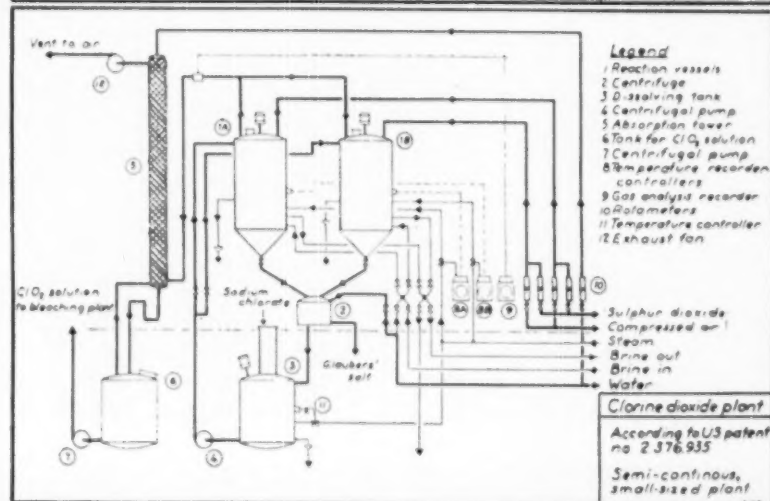
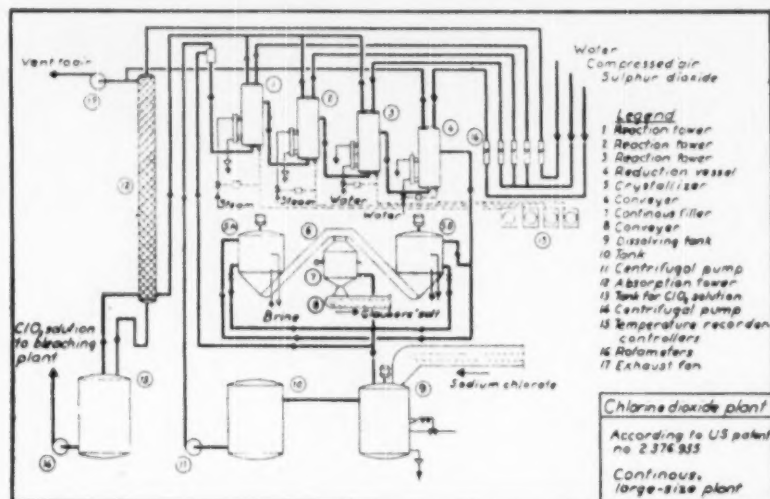
ly has to be carried out at each bleaching plant. The production units will, therefore, be rather small.

Chlorine dioxide is produced from some suitable chlorate usually sodium potassium or calcium chlorate. These are rather expensive materials but one must remember that when used as a bleaching agent 1 lb. of ClO_2 corresponds to 2.67 lbs. of available chlorine.

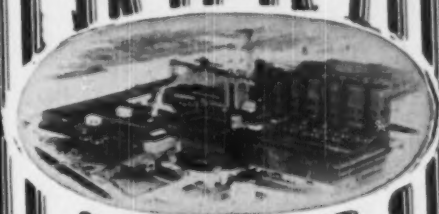
In the past many different materials have been tried as reducing agents for the reduction of chlorates to chlorine dioxide. Some of the proposed methods are represented by the following equations:

Reducing Material	Reaction Formula
Sulphuric Acid	$2 \text{NaClO}_3 + 2 \text{H}_2\text{SO}_4 = 4 \text{ClO}_2 + 2 \text{Na}_2\text{SO}_4 + 2 \text{H}_2\text{O}$
Hydrochloric Acid	$2 \text{NaClO}_3 + 4 \text{HCl} = 2 \text{ClO}_2 + 2 \text{NaCl} + 2 \text{H}_2\text{O} + \text{Cl}_2$
Methanol	$6 \text{NaClO}_3 + \text{CH}_3\text{OH} + 6 \text{H}_2\text{SO}_4 = 6 \text{ClO}_2 + 6 \text{NaHSO}_4 + 5 \text{H}_2\text{O} + \text{CO}_2$
Reducing Material	Reaction Formula
Sulphuric Acid	$2 \text{NaClO}_3 + \text{H}_2\text{SO}_4 + \text{H}_2\text{C}_2\text{O}_4 = 2 \text{ClO}_2 + 2 \text{NaHSO}_4 + 2 \text{H}_2\text{O} + \text{CO}_2$
Sulphur Dioxide	$2 \text{NaClO}_3 + \text{SO}_2 = 2 \text{ClO}_2 + \text{Na}_2\text{SO}_4$
Sulphurous Sulphate	$2 \text{NaClO}_3 + \text{NaHSO}_4 = 2 \text{ClO}_2 + \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$

In a bleaching plant the chlorine dioxide production unit will only be a relatively small part of the whole plant. It is, therefore, important that this unit is trouble free and easy to operate. None of the



SOUNDVIEW



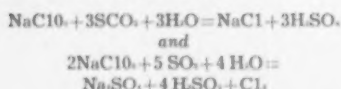
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foregoing methods fulfill the requirements for a process to be used in a pulp mill as a supplement to the bleach plant. They are either too costly or too hazardous. The hydrochloric acid process gives good yields under optimum conditions but has the drawback that the chlorine dioxide is contaminated with chlorine.

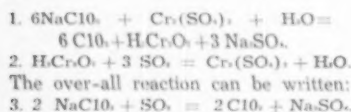
In many respects sulphur dioxide is an ideal reducing chemical for the production of chlorine dioxide as sulphur is used in large quantities as a raw material in the cellulose industry. At the reaction with chlorates SO_2 acts as an acid and no extra acid is consumed. During the reaction the sulphur dioxide is converted to sodium sulphate, which is also used in large quantities in the cellulose industry. However, when chlorates are reduced to chlorine dioxide with SO_2 it is rather difficult to obtain a good yield of ClO_2 due to certain side reactions:



In order to obtain an acceptable yield it has previously been necessary to carry out the reduction in a concentrated sulphuric acid solution.

In the S. H. Persson process these difficulties have been almost completely eliminated through the introduction of a reduction moderator (reduction buffer). Many such materials were investigated in the laboratory. With some the yield of chlorine dioxide was high and very little dependent on temperature and acidity. Hydrochloric acid, hydrobromic acid, selenious acid and compounds of chromium, mangan, vanadium and thallium in their lower valence stages belong to this group. For other reducing materials such as sulphur dioxide, hydrogen sulphide, ferrous salts and arsenic trioxide the yields are much poorer and very dependent on the condition prevailing in the reaction mixture. In the process under discussion the basic principle consists in the use of a material from the first group as a reduction moderator, while the reduction of a chlorate is carried out with a material from the second group. As reduction moderator chromic sulphate gives the best results.

The process proceeds in two stages according to the following reaction equations:



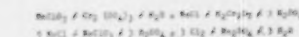
The reactions 1 and 2 can be carried out either simultaneously or consecutively. In the first case sulphur dioxide and air are blown through a heated solution of sodium chlorate, sulphuric acid, chromic sulphate and sodium dichromate. The feed of sulphur dioxide is regulated to correspond with the rate of reaction in order to keep 50-80 per cent of the

chromium content in the reduced state. Part of the solution is circulated through a vessel where sodium chlorate is dissolved at a temperature of 20-30°C. External cooling is not necessary as heat is consumed by the dissolution of the salt. When the sodium sulphate content has risen to a predetermined value the solution is cooled preferably to +10°C or lower. Glauber's salt (sodium sulphate decahydrate, $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$) crystallizes out and can easily be separated from the mixture by centrifuging. The water balance is very favorable as large amounts of water are carried away from the solution by the gas mixture (as vapor) and by the Glauber's salt (as water of crystallization). It is, therefore, possible to wash the salt very thoroughly on the centrifuge without increasing the volume of the solution. The losses of chromium and chlorate can consequently be kept at a very low level.

Somewhat better yields and easier operation are realized, however, if the two reactions are carried out as separate steps. In this case only air is fed to the reaction vessel instead of an air-sulphur dioxide gas mixture. The reduction of the sodium dichromate is performed at 20°-30°C in a separate vessel. In this step practically no reduction of the chlorate present takes place, which is somewhat surprising.

The velocity of reaction 1 is approximately proportional to the concentration of trivalent chromium to the chlorate concentration and to the hydrogen ion concentration in the solution. In order to keep the solution volumes as small as possible it is obviously desirable to use a solution with a high concentration of sulphuric acid, sodium chlorate and chromic sulphate. On the other hand it is difficult to separate the sodium sulphate as Glauber's salt from the solution through crystallization if the solution is too concentrated. At high sulphuric acid concentrations the acid sodium sulphate is obtained as the solid phase by cooling instead of the sodium sulphate decahydrate. Because of the high solubility of the acid salt and the high viscosity of the solution the crystallization is very difficult to perform. In ordinary operation practice a reaction mixture containing 50-100 grams $\text{Cr}_2(\text{SO}_4)_3$, 100-150 grams H_2SO_4 and 350-450 grams NaClO_3 per liter will give the best results. Due to the relatively high acidity in this mixture all sulphate is present in the form of bisulphate ions. The hydrogen ion concentration consequently decreases when the sulphate concentration increases, which causes a drop in the reaction rate. From this point of view the crystallization temperature should not exceed 8°-10°C in order to keep the sulphate concentration at a low figure.

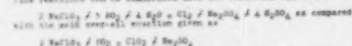
Reaction 1 proceeds almost without any side reactions at optimum conditions. A small amount of chlorine, however, is formed according to the following equations:



By the reduction of the dichromate with sodium chloride a small amount of sodium chloride is formed according to the reaction equation:



When the solution is heated in the reaction vessel the sodium chloride formed reacts with chlorate according to the reaction given above. This reaction affects the chloride concentration in the solution to result at a low practically constant value. The yield-diminishing side reactions are in comparison into the following equation:



Under optimum conditions a gas obtaining less than 0.2 moles of Cl_2 per 100 moles of ClO_2 can be obtained. This corresponds to a yield of 4.5 percent based on the amount of chlorine consumed and 0.1 percent on the sulphur dioxide consumed. In ordinary large scale operations an excess chlorine content of 1-2 moles of Cl_2 per 100 moles of ClO_2 is usually observed, which corresponds to a yield of 30-50 percent on chlorate and 50-75 percent on sulphur dioxide.

Process Flow Sheet

The Persson method of manufacturing chlorine dioxide can be carried out either as a batch process or as a completely continuous process. The batch operation will usually be chosen when the demand of chlorine dioxide is small, say less than 200 lbs. per day. For large plants, producing 5,000-10,000 lbs. of chlorine dioxide or more per day, a continuous operation will be used exclusively. For intermediate sizes it is convenient to perform the crystallization of the Glauber's salt in batches and carry out the remaining operations continuously. Flow sheets for a batch plant and for a completely continuous unit are submitted.

The batch process is operated in the following manner: In a reaction vessel (1) the reaction mixture is heated to about 70°C by means of a heating coil. Air is blown through the solution and the chlorine dioxide air mixture leaving the vessel is washed with water in an absorption tower (5) filled with Raschig rings. As the reaction velocity gradually diminishes the temperature is slowly raised to an end value of about 85°C. When about 75 per cent of the chromium content has been oxidized to dichromate, the solution is cooled to room temperature and sulphur dioxide gas, preferably diluted by air, is fed to the vessel until about 80 per cent of the chromium content has been converted to the trivalent form. The solution is then cooled to 5-10°C and the Glauber's salt formed is centrifuged off and washed with water on the centrifuge. An appropriate amount of sodium chlorate is dissolved in the solution and the operation is repeated. It is convenient to use duplicate reaction units simultaneously. When the reaction is carried out in one of the vessels the mixture is reduced and the Glauber's salt crystallized in the other one and vice versa.

In a continuous plant the reaction mixture is circulated by means of a pump through a series of vessels in which the reaction to chlorine dioxide (1, 2, 3), the reduction of the dichromate with SO_2 (4), the crystallization of the Glauber's salt (5) and the dissolution of the sodium chlorate (9) takes place. The salt crystals are transported with the aid of a screw conveyor from the crystallizer (5) to a continuous filter or centrifuge (7) where it is washed with water.

All vessels and tanks containing the reaction mixture are constructed of steel plate lined with hard rubber or chemical lead and tiled with acid-proof bricks. Tanks for chlorine dioxide solution can be constructed in reinforced concrete, lined with acid-proof bricks. Chemical lead piping and Monel metal pumps and valves are used for the reaction mixture and the chlorine dioxide gas. The absorption tower is constructed from stoneware piping and is filled with porcelain Raschig rings. Stoneware piping and pumps are preferably used for the chlorine dioxide solution but chemical lead and some stainless steels can also be used.

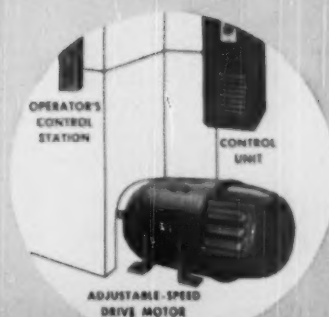
The solution leaving the absorption tower contains about 5 grams ClO_2 per liter, which corresponds to 14 grams of available chlorine per liter. Thus the solution possesses about the same strength as the hypochlorite solution which is normally used in pulp bleaching.

Production Cost

The yield of chlorine dioxide obtained in Persson designed plants amounts to 90-92% with regard to the sodium chlorate and 75-80% with regard to the sulphur dioxide consumed. In a

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plant of this size the chlorine dioxide will thus cost about 22 cents per lb. or 6.2 cents per lb. of available chlorine. In larger plants the production cost will be less on account of lower labor cost per ton product.

Source of Losses	Loss, %	Loss, %
Through chlorine formation in side reactions	45	205
Incomplete absorption in the absorption tower	25	25
Leakage	15	
Other losses	15	15
	25	255

The loss of chlorine will usually amount to less than 1 lb. of sodium dichromate dihydrate per 1,000 lbs. of chlorine dioxide. The consumption of raw materials and energy will be approximately as follows in a plant producing 2,000 lbs. of chlorine dioxide per day.

	Per Short Ton of ClO_2
Sodium Chlorate (98% Pure)	3400 lbs.
Sulphur Dioxide	1200 "
Sodium Dichromate Dihydrate Wt.	12 "
Compressed Air (15 p.s.i.)	50000 cu. ft.
Water	10000 "
Steam (15 p.s.i.)	8000 lbs.
Power	1500 kWh

On the basis of these figures the production cost for the process is approximately:

	Per Short Ton of ClO_2
Sodium Chlorate 3400 lbs. @ \$0.09 per lb.	\$315.00
Sulphur Dioxide 1200 " @ 0.01 " "	12.00
Sodium Dichromate 12 " @ 0.10 " "	1.00
Compressed Air 50000 cu. ft. @ 0.05 " "	2.50
Water 10000 " @ 0.10 " "	1.00
Steam 8000 lbs. @ 0.50 " lb.	4.00
Power 1500 kWh @ 8.00 " kWh	12.00
Cost of raw material	\$347.50
Labor (1 man per shift) \$15,000.00 per year	43.00
Repairs and Maintenance, estimated	25.00
Depreciation	75.00
Production Cost	\$490.50
Credit for by-products: 2 tons of sodium sulphate at \$25.00 per ton	50.00
Net Production Cost	\$440.50

Bleaching With Chlorine Dioxide

When used in an acid or neutral solution chlorine dioxide will leave all cellulose components practically unaffected even at long exposure times and high temperatures and concentrations. It is possible to bleach kraft pulp or strong sulphite pulp with chlorine dioxide to the highest whiteness without decrease in viscosity or loss of strength. It is also possible to bleach high alpha pulp (96-98% alpha content) without any substantial decrease in the alpha percentage. The inertness of chlorine dioxide towards cellulose is in striking contrast to the properties of the common bleaching materials such as elementary chlorine or calcium hypochlorite.

Chlorine dioxide reacts vigorously and rapidly with lignin and other colored constituents of wood pulp. If enough chlorine dioxide is used all lignin present can be rendered soluble in dilute alkali and be removed by an alkaline washing. If less chlorine is used the lignin is still strongly affected so that a subsequent treatment with other chemicals such as hypochlorite or strong alkali would be much more effective than would be the case without a pre-treatment with chlorine dioxide. This property can be utilized in a number of ways. If pre-bleached kraft pulp is treated with chlorine dioxide before the usual final bleaching with hypochlorite a shorter hypochlorite bleaching time and lower temperature are needed for the attainment of the same whiteness and as a result a stronger pulp is obtained. In the alkaline pulping of straw for paper manufacture much of the cellulose is lost due to the destructive action of the caustic at the cooking conditions which are necessary in order to obtain a satisfactory delignification. If the raw material is pretreated with 3-4% by weight of chlorine dioxide the yield of paper pulp can be raised as much as 50 per cent.

When used in an acid solution a "blocking effect" similar to that encountered in the bleaching with elementary chlorine is noticed.

For this reason it is not possible to remove an unlimited amount of lignin with chlorine dioxide in one single step. If the lignin content is high the chlorine dioxide treatment must be divided into stages separated by alkaline washings in order to dissolve the oxidized and chlorinated products which are the cause of the blocking. However, it is always possible to remove a large part of the lignin by means of chlorine and hypochlorite without any degradation of the pulp. Thus through a combination with direct chlorination, caustic extraction and hypochlorite treatments not only is the blocking effect avoided but a saving of the more expensive chlorine dioxide is effected. Perhaps the most striking example of the advantages attainable in using chlorine dioxide as a bleaching material in the cellulose industry has been demonstrated in the use of this new chemical for the production of bleached sulphate pulp.

In this way it has become possible to produce a pulp with a beautiful bluish-white tinge, 5-8 G.E. units whiter than for previous qualities and with excellent paper making properties. The strength is 15-20 per cent better and the degree of beating required for obtaining optimum properties is considerably shortened.

The chlorine dioxide solution should be pure—as free of free chlorine as possible. Bleaching with a mixture of chlorine and chlorine dioxide must be carried out at a high pH 8.5-9 while pure chlorine dioxide is to best advantage used in acid solution. Chlorine dioxide is mainly more oxidizing in alkali solution than in acid solution and not only the lignin but also cellulose is attacked. Experience has shown that great care must be exercised when working with chlorine dioxide in alkali solution so that the benefits inherent with chlorine dioxide bleaching are not lost. That is not the case when working with acid solutions.

The European mills that practice chlorine dioxide bleaching use up to 20 lbs. of chlorine dioxide per ton of pulp.

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FIVE OHIO TECHNICAL MEN experted a recent Tappi pulp testing meeting in Middletown, Ohio, where a disc refiner used by Mead Corp. for pulp strength testing came in for some discussion. L. to r.: Dr. E. F. Parmenter, Research Chemist, Champion Paper and Fibre Co., Hamilton, O.; H. W. Layman, Technical Director, Meade Corp., Chillicothe, O.; Don Goodman, Asst. Technical Director, Seng Paper Co., Middletown, O.; C. R. Brandon, Chemist, Aetna Paper Co., Div., Howard Paper Mills, Dayton, O., and M. C. Lyon, Research Chemist, Champion, Hamilton.

Records In Daily Production

Union Bag & Paper Corp., Savannah, Ga., established new production records in January.

The pulp record (20 digesters): A daily average of 1232 tons.

The paper record (5-234-in. machines): A daily average of 1177 tons.

Previous records were made in Nov., 1948, 1184.1 tons of pulp and 1153 tons of paper.

OLIVER PORTER, retired executive director of the U. S. Pulp Producers, received a beautiful silver tray and service from an appreciative membership during "Paper Week." Mr. Porter took leave in 1949 to diagram in the first steps of setting up the pulp and paper division of NSRB. Since completing that work he has been taking things easy at his home in Westchester County.

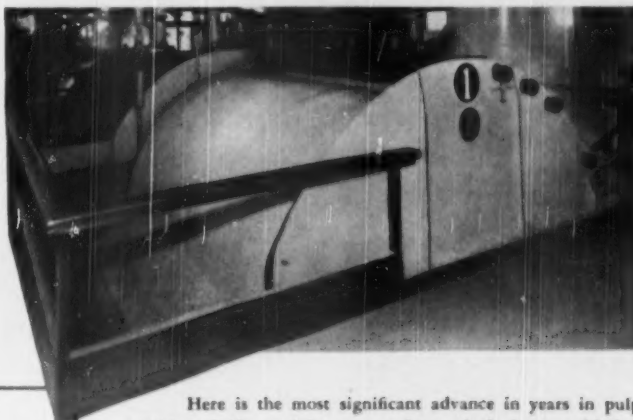
Superintendents Meet At Yorktown, Pa.

As May first week wound up the Superintendents of the lively Penn-New Jersey-Delaware division were holding their annual spring meeting at the Yorktown Hotel in Yorktown, Pa. Featured were a visit to the Glatfelter mill, golf, and star papers by Edward F. Manogue, Gibraltar Corrugated Paper Co.; William D. Rice, Glatfelter; Benjamin Haug, Scott Paper Co., and Thomas Brookover, Downingtown Paper Co. Glen Renegar, CCofA, is chairman, and the program committee: Al Hartley and Walter Morehouse, Nopco Chemical, of the affiliates; James Thrall, W. C. Hamilton & Sons; Howard Street, National Vulcanized Fiber.

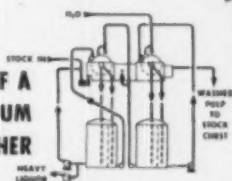
Death of Grafton Whiting

Grafton Whiting, who served as statistician of National Paperboard Association from the time it was organized in 1933 until a year ago, passed away at his home in Evanston, Ill., March 31.

Cleaner Sulfite Pulp with Less Wash Water



FLOW SHEET OF A TYPICAL 2-DRUM 4-STAGE WASHER



Swenson-Nyman Pulp Washers actually cost less installed, because each drum provides two washing stages. This reduces the number of drums required, as well as the amount of auxiliary equipment.

Here is the most significant advance in years in pulp washing. Sulfite pulp* can now be washed cleaner with less water, on Swenson-Nyman Pulp Washers. Each drum provides 2-stage washing, and the entire system is totally closed.

Using two drums with a repulper between (flow sheet shows resulting 4-stage operation) the sulfite stock emerges cleaner, while the recovered liquor carries a higher percentage of total solids to evaporators, alcohol plant or other recovery process.

Send for Bulletin E-108 which fully describes this and other Swenson equipment for pulp mills.

*Also soda and sulfate pulp

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Crown-Zellerbach officers have established a tradition of entertaining 50-year employees with a week's tour and vacation in San Francisco area and awards of diamond pins. Here is one party—(Front row, l. to r.): J. D. Zellerbach, President; Ed Frederick, 50-year man from West Linn, Ore., mill, now in salvage dept.; Louis Bloch, Board Chairman; Frank Hammerle, another 50-year man and Supervisor of Finishing and Shipping Dept. for 25 years at West Linn; R. A. McDonald, Executive Vice President. Standing (left to right): K. I. Taylor; D. J. Gulen, Secretary; R. O. Hunt, Asst. to Vice Pres. Jack Hannay; A. R. Huron, Vice Pres.; R. O. Young, Asst. Vice Pres., and Geo. McKenna.



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HAROLD H. FISH, Syracuse, N. Y.

Big Newsprint Machine to Start In Australia During 1950

Ronald Moon, sawmill manager for Australian Newsprint Mills, Ltd., the only newsprint producer in the commonwealth and one of the largest timber operators in the South Pacific, told PULP & PAPER about his company's operations at Boyer, Tasmania, which will start up a new sawmill and new 240-inch newsprint machine by next summer. The machine is being manufactured by Dominion Engineering Co. of Canada, and will be similar to machines built for Powell River Co. and Bowater's Newfoundland Pulp & Paper Mills, which were recently installed. The present newsprint machine at Boyer, a Walmsley unit built in England and installed in 1939, is a 172-inch and is operated at a maximum speed of about 1100 feet per minute. The new machine is expected to run about 1600 feet per minute. At present the mill produces about 32,000 tons of newsprint annually, and the new machine will have a capacity of about 80,000 tons.

In the new sawmill, there will be a log kicker to discharge the logs onto the deck, a log stop and loader, log turner and pusher, and a log carriage with electric set works, all built by Sumner Iron Works.

New Addition For Portland Flintkote Plant

A \$75,000 addition to the plant facilities of Pioneer Division of The Flintkote Co., Portland, Ore., is going to consist primarily of Flintkote patented machinery for manufacturing highly colored ceramic granules for roofing, according to W. A. Moore, superintendent at Portland.

The expansion will provide this plant with facilities equivalent to the organization's Los Angeles plant, where granules are now obtained for the Portland plant. The project is expected to be completed by May 1. The Portland plant manufactures saturated felt, roll roofing and shingles, using about 30 tons of felt per day.

WANTED: To represent an affiliate of the paper industry by a man experienced in all phases of technical processes and with raw materials, fibrous and chemical, including dyes, organic and inorganic pigments, adhesives. Also familiar with durable materials. Reply to Box P&P-75, PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

WANTED—CAMERON 88" Type T-18 Rewinder, 42" Rewind capacity, or similar equipment, with six slitters complete. For use at end of paper machine after dampener. Bottom side of sheet dare not touch any drums or rolls after dampening. Reply Box P&P-72, PULP & PAPER, 71 Columbia

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4 knife 96" Murray chipper
1—Left hand 96" roller bearing chipper with complete direct-connected drive as follows:

- 1—Synchronous Motor, 150 HP, 240 RPM, 440 Volts, 3 Phase, 60 Cycles 80% leading power factor. Exciting volts 125.
- 1—Control Panel, full voltage starting, Field Rheostats, etc.
- 1—Separate exciter, 440 volts A.C., 125 volts D.C.

This equipment is complete and ready to operate. (Prints sent upon request.)

Reply Box P&P-66, Pulp & Paper, 71 Columbia St., Seattle 4, Wash.

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THE three Semtile chests shown in plan will provide absolutely clean storage for three kinds of pulp in slush form, ready for pumping to the beaters or stock preparation system. When you have decided on your chest requirements for any stock handling or storage system, consult Stebbins to obtain the best possible construction for long time dependable service.



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Personals

News About Industry People From Coast to Coast . . .

L. E. FALBE, purchasing agent, Cornell Wood Products Co., Cornell, Wis., will move his offices to the Milwaukee plant and will assume the responsibility of purchasing for both mills. **H. R. GARBUTT**, who has been waste paper buyer for Cornell since 1942, will devote his full time to production.

MAURICE V. ABBOTT has been named sales manager, Blake, Moffitt & Towne, Fresno, Calif., it is announced by Edward H. Marsella, division manager. Coming to Fresno as a boy from Sumner, Wash., Abbott attended Fresno State College. Before joining Blake, Moffitt & Towne five years ago he had experience in utilities and insurance.



W. J. LOWNDES, who succeeded E. H. Vicary, now retired, in late '49 as head of Crown Zellerbach's Central Engineering Division, in Seattle, as we reported in a recent issue, Mr. Lowndes holds title of Chief Engineer for C-Z operations. He spent some years with Abitibi Power & Paper Co. at Iroquois Falls, Ont.; was Resident Engineer on construction of what is now the Rayonier mill in Port Angeles in 1929-30 was Assistant Chief Engineer of

Crown's Central Engineering office since its inception in 1932. During the early part of that period he was also in Central Engineering for Rayonier and handled construction of all Rayonier mills on the Pacific Coast and design of the Rayonier mill at Fernandina, Fla., and recently handled most of the work in connection with C-Z expansion at Camas, West Linn and Port Townsend.



FRANK GOLANSKY (left) of Power Dept. in Strathmore Paper Co.'s West Springfield, Mass., mills receiving a \$50 U. S. Savings Bond from C. M. BRYAN, Vice President in Charge of Production, for his prize-winning slogan, "Quality Our Guide—Perfection Our Goal," in Strathmore's quality education program.

Supt. Bob Fuller Dies

A. C. "Bob" Fuller, long a superintendent in Canadian, U. S. and Australian mills, died recently at Antioch, Calif. His last position was as board mill superintendent in the new Fibreboard Products, Inc., mill just built at East Antioch. He went there in 1948 from Brompton Pulp & Paper Co.'s new mill at Red Rock, Ont., and from 1936-41 he was superintendent in charge of building and starting up Australian Paper Manufacturers' kraft mill in Australia.

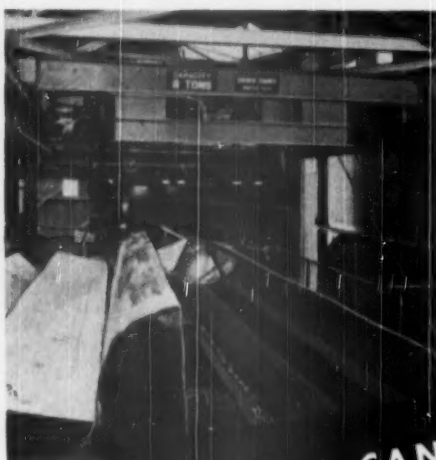
From 1915 to 1930 he was at Camas, Wash., and other Crown Z mills, and then went to South U. S. for two years on experimental work with Southern pine groundwood.

C. H. DUNN is board mill superintendent at the new East Antioch, Calif., mill of Fibreboard Products Inc., having succeeded the late A. C. "Bob" Fuller.

J. NORMAN McDOWELL of New Rochelle, N.Y., has been made manager of the General Paper Co. plant at Beaver Dam, Pa., manufacturers of crepe paper specialties and toweling. Mr. McDowell was president of Carew Manufacturing Co., South Hadley Falls, Mass., and recently he has been engaged in development of paper specialties in New York.

JOHN T. FUMAL, assistant superintendent of the Tuttle Press Co., Appleton, Wis., a well known firm in that paper town, has been promoted to superintendent of the plant. The board also named Robert H. Purdy as assistant general manager. L. R. Watson is vice president in charge of sales and H. D. Purdy is vice president in charge of production.

HENRY ORSTAD, mechanical foreman Minnesota and Ontario Paper Co., International Falls, Minn., received a \$410 suggestion award, the second largest single award paid to a Mando employee since the company set up its suggestion system in 1945. Mr. Orstad devised an automatic tripping device which speeds up the grinding process by reducing the waiting time in retracting the grinding shoe and gate on grinder pockets. Previously, up to a whole minute was lost until another load of pulp sticks was automatically released from the chute for re-filling.



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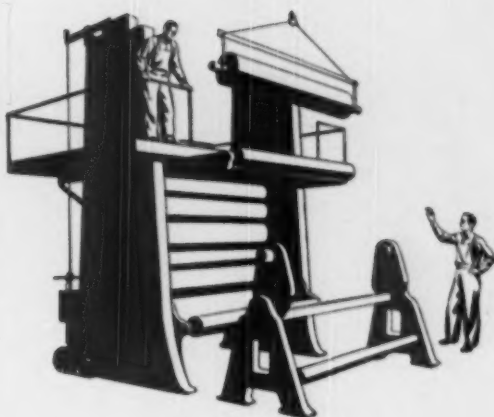
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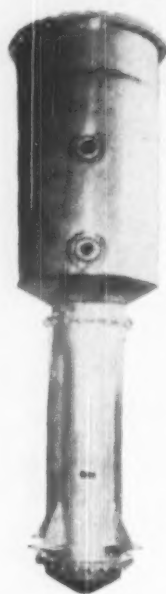
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New Hudson Machine

Charles Grondona, newly elected vice president in charge of operations of Hudson Pulp & Paper Co., which manages several mills from headquarters in Manhattan, reports the new machine at Palatka, Fla., being built in a new mill parallel to the existing mill completed about two years, will be 234-inches on the wire and will produce light weight kraft mf and mg papers.

More Paper Uses

The American laundry bundle may shrink as much as 50% during the next decade, says Lowell M. Birrell, chairman of the board of the San-Nap-Pak Manufacturing Co., Inc. New techniques of papermaking, permitting the addition of wet strength to paper, may make other paper products of a disposable nature popular in the American home.

Mr. Birrell pointed out that within the last decade handkerchiefs, shades, drapery, napkins and tablecloths of paper had saved millions of dollars in laundry bills and millions of women work hours. Most conservative estimates indicate savings of more than 45 million dollars a year to the American housewife in the laundering of handkerchiefs alone, with a comparable savings in dinner napkins.

"Now that the paper industry is at last catching up with immediate demands and selling more than 75 million dollars worth of facial tissues alone through drug stores, department stores and super markets, this industry can begin to utilize the new science of the laboratory to cut even deeper into the laundry bundle and save time and money," said Mr. Birrell.

St. Helens Resumes

Manufacturing operations of St. Helens Pulp & Paper Co., St. Helens, Ore., were closed down during first two weeks of April for rebuilding both of the mill's paper machines. This modernization project aimed at a slight increase in production, amounting to 10 tons per day, and improving quality of products, according to Max R. Oberdorfer, Jr., vice president and assistant manager.

**Western Canada Production
Forecast for 1950**

Production of British Columbia's pulp and paper industry will be greater this year than ever before, according to Paul E. Cooper, president of Pacific Mills, Ltd., and chairman of the western branch, Canadian Pulp and Paper Association.

Mr. Cooper estimates that the combined tonnage for all the mills in British Columbia in 1950 will be about 766,000, diversified as follows: Unbleached sulfate pulp, 83,500 tons; bleached sulfate pulp, 30,000 tons; sulfite pulp, 76,000 tons; newsprint, 385,000 tons; paper boards and felts, 16,300 tons; paper specialties, 65,500 tons; rayon and dissolving pulp, 110,000 tons.

Pulp production in British Columbia in 1952 will probably total 1,000,000 tons a year "without further embarrassing the wood supply situation," according to Hon. E. T. Kenney, the province's minister of lands and forests.

In British Columbia in 1915 only 50,907 tons of pulp were produced.

A Marathon Package

"It wasn't advertised but outsold an advertised, less expensive package three to one," says a chain store manager about a new sliced bacon package designed by Marathon Corp., Menasha, Wis. It's a cellophane overwrapped package with a new angle—the greaseproof bottom board folds back to make a panel on one or two sides, these flaps giving the package rigidity as well as providing a printing surface for brand identification and price marking. And this brand identification isn't lost when the wrapper is removed, for the printing is on the board, not the wrapper.

COMING INDUSTRY MEETINGS

National

Joint U. S.-Canada Fundamental Research Conf.—Chateau Frontenac, Que. May 29-30

Supts' Assn. (Natl. Meeting)—Edgewater Beach Hotel, Chicago June 8-10

Paper and Twine Assn. (Annual Meeting)—French Lick Springs Hotel, French Lick Springs, Ind. June 16-17

Forest Products Research Society—Portland, Ore. (Annual Meeting) June 25-29

Forest Products Research Industry Show, Armory, Portland June 26-30

Envelope Mfrs. Assn.—Greenbriar Hotel, White Sulphur Springs, W. Va. July 10-11

Educational Graphic Arts Exposition—Chicago Sept. 11-23

Engineering Conference—Netherlands-Plaza Hotel, Cincinnati Oct. 2-5

Regional

Lake States Technical Committee, Amer. Pulpwood Assn.—King's Gateway, Land O' Lakes, Mich. May 3

Western New York Tech. Section—Prospect House, Niagara Falls, N. Y. May 10

Ohio Tech. Section (Annual Meeting)—Manchester Hotel, Middletown, O. May 11

Pac. Coast Supts.—Westn. Branch, Cana. Tech. Section—Pac. Coast Tappi (Joint Convention)—New Washington Hotel, Seattle May 11-13

Canadian Tech. Section—Chateau Frontenac, Que. May 31-June 2

New England - Maine - New Hampshire Tech. Section (Joint Meeting)—Wentworth-by-the-Sea, Portsmouth, N. H. June 22-24

Northwest Supts.—Schroeder Hotel, Milwaukee, Wis. Sept. 15-16

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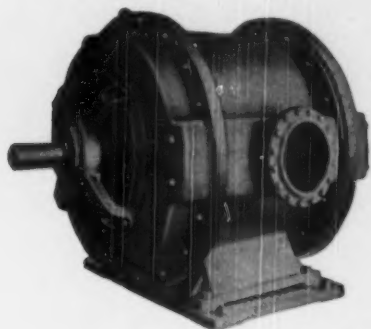


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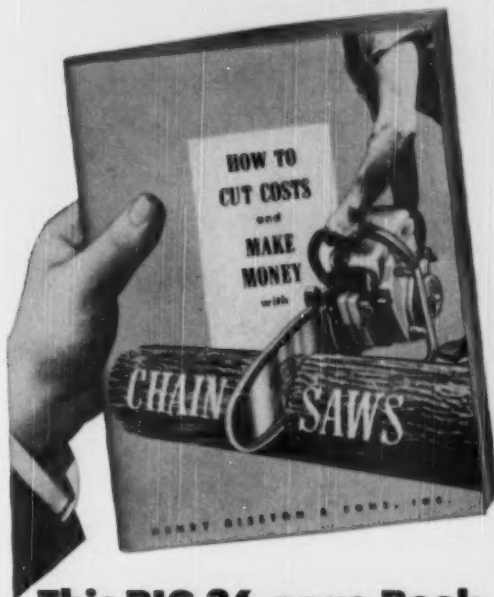


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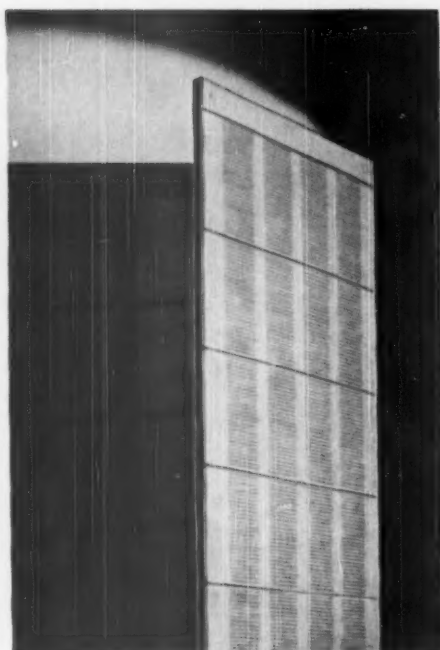
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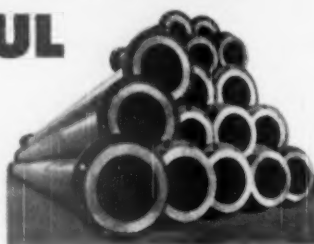
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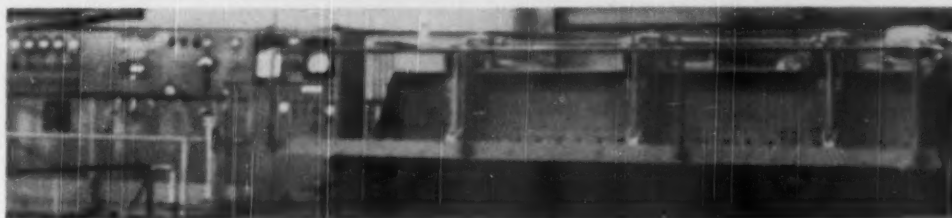
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